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HJL

Hicklinger Johnston

FIRE PREVENTION MODEL FOR NORTHERN ALBERTA

Prepared For:

ALBERTA PROVINCIAL FIRE CHIEFS ASSOCIATION
AND THE
GOVERNMENT OF ALBERTA, REPRESENTED BY
ALBERTA TOURISM AND SMALL BUSINESS
AND THE
NORTHERN ALBERTA DEVELOPMENT COUNCIL

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AND HAS BEEN COST-SHARED UNDER THE
AUSPICES OF THE CANADA/ALBERTA
SUBSIDIARY AGREEMENT ON ALBERTA NORTH

JUNE 1983

Report prepared by Hickling-Johnston Limited and W.J. Page & Associates Limited under the auspices of the Steering Committee established to review Fire Protection and Prevention in northern Alberta

COMMITTEE AUTHORIZATION

The Steering Committee for Fire Prevention/Protection has examined the fire situation in Northern Alberta and has developed this report in response to several critical issues associated with this region. The Committee looks forward to the rapid and successful implementation of the recommendations.

- J. Masson
  Alberta Urban Municipalities Association
- J. Edworthy
  Alberta Association of Municipal
  Districts and Counties
- V. McLean
  Alberta Fire Chief's Association
- P. Erasmus, Member
  Northern Alberta Development Council
- H. Caufield
  Deputy Fire Commissioner
- G. Cooper
  Alberta Labour
- R. Goettel
  Alberta Municipal Affairs
- A.A. Day
  Associate Director of Curriculum
  Alberta Education
- R. Blackburn
  Northern Development Branch

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REFER TO ADDENDUM DOCUMENT.

EXECUTIVE SUMMARY

1.0 CONCLUSION OVERVIEW

A review of Fire Prevention and Protection in northern Alberta has established that there is a substantial need for the enhanced delivery of fire prevention in northern Alberta, and particularly in northern rural Alberta.

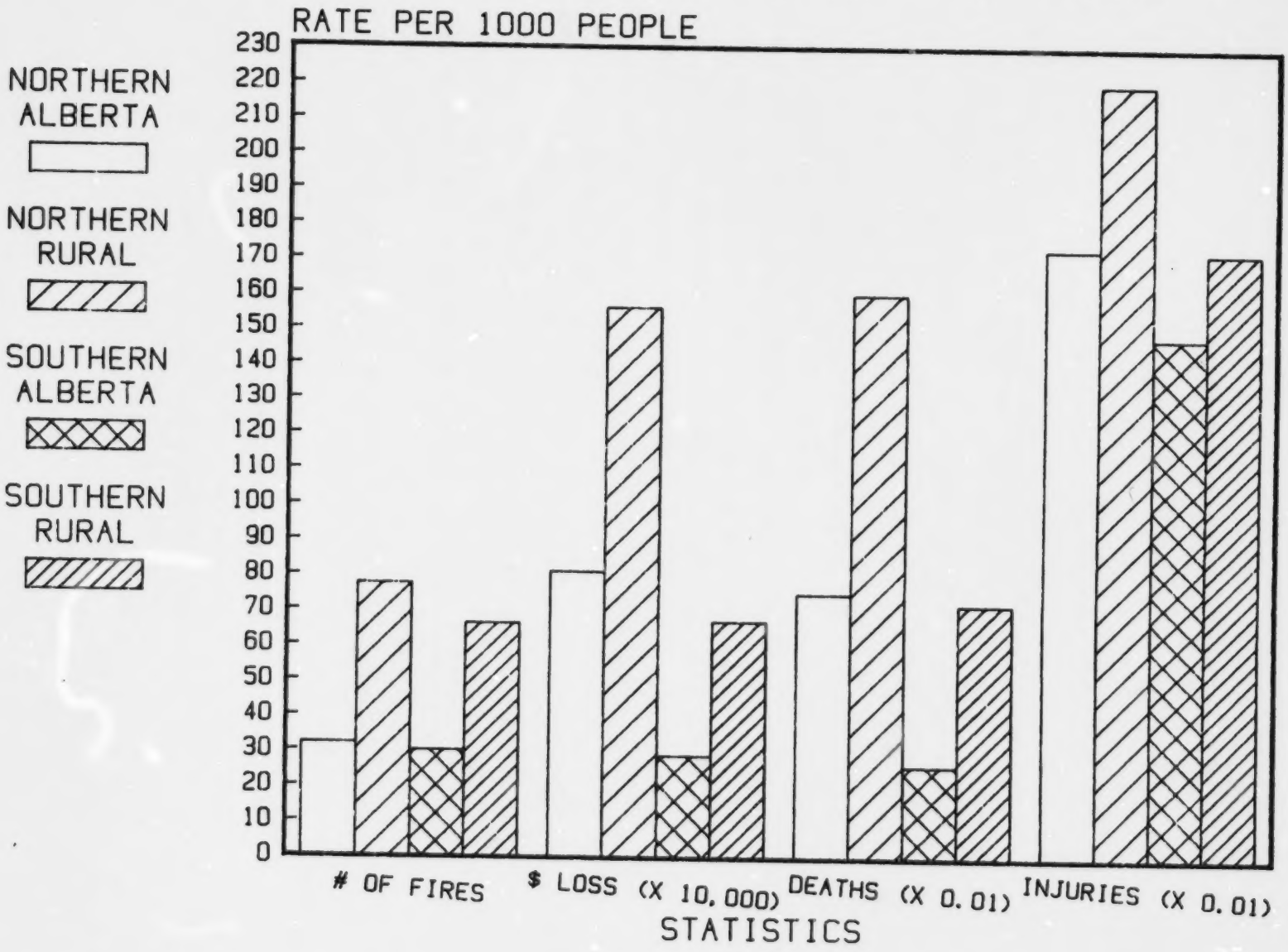
The nature and severity of the fire problem in northern Alberta requires a Fire Prevention Model which deals with public attitudes and behavior. Like other activities which deal with public education and behavior, solutions to the problem often require long-term periods of commitment for significant impacts to be gained. Consequently, the Fire Prevention Program should be evaluated on a long-term basis, with an indepth evaluation of the Model being conducted after a period of five years of operation.

The model can be viewed as a community and public education effort supported by a professional facilitator in the form of a Regional Fire Liaison Officer. The model solicits the support of the provincial, regional and local professionals/support groups and suggests that technological aids be integrated where possible. The administration of the model is designed to be cost-effective by better utilizing the skills and capacities of existing professionals plus those of volunteers.

The implementation of the model and its programs is recommended to be on a phased approach. Such an approach will provide the largest returns possible by focusing on areas which have the greatest need.

FIRE STATISTICS 1971-82

ALBERTA-NORTH, SOUTH, N. &S. RURAL



The costs for Phase I of the Model will be $80,000 per year, with the total cost for the north estimated to reach $480,000 per year over a five-year (or more) period. The benefits of this effort should firstly be death rates decreasing from the current level of twice the provincial average, as well as the lowering of injuries and dollar loss.

In closing, we believe that the recommended model is highly desirable and can provide numerous benefits of reduced death, injury, and dollar loss in northern Alberta.

A STATISTICAL REVIEW DEMONSTRATES IMPACTS OF FIRE TO BE SIGNIFICANTLY GREATER IN NORTHERN ALBERTA THAN IN SOUTHERN ALBERTA

The chart on the facing page, Fire Statistics 1971-82[1], plots four primary statistics for northern, northern rural[2], southern and southern rural Alberta:

- Number of fires;
- Dollar loss;
- Deaths;
- Injuries.

Three major conclusions are obvious from the chart:

- The rate of death is significantly greater for the northern areas of Alberta compared to the other regions (1.6 per 1,000 people in northern rural versus 0.75 in north; 0.26 in south versus 0.72 in southern rural);

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1. All statistics were received from Alberta Department of Labour.

2. By definition, "rural" is intended to include all unincorporated communities and rural populated areas within the NADC boundary.

- The dollar loss per 1,000 persons is significantly greater in the northern rural areas of Alberta compared to other regions:

  - Northern Rural -- $1,560,000;
  - Northern -- $810,000;
  - Southern Rural -- $700,000;
  - Southern -- $287,000.

- There is a slightly greater incidence of fires in the northern versus southern areas of Alberta (32 versus 30 fires per 1,000 people overall, and 78 versus 66 when comparing rural areas). Similarly, injuries in the north occur at a rate of 1.73 per 1,000 versus 2.2 for the northern rural, 1.48 for the south, and 1.3 for the southern rural.

The foregoing conclusions direct us to a focus that should be taken for providing fire related services in Alberta that emphasize the northern area, with special regard to the rural north where very significant impacts from fire have been demonstrated to exist.

FIRE RELATED SERVICES INCLUDE BOTH PROTECTION AND PREVENTION, BUT A FOCUS SHOULD BE GIVEN TO PREVENTION FOR THE NORTH

When considering the safeguarding of property and persons from the effects of fire, two separations can be made: prevention (stopping fires from starting); and protection (minimizing damage and loss). Typically, the former is thought of in educational and design terms, and the latter in terms of physical equipment and facilities, coupled with trained personnel.

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1. Note that the fire equipment is primarily located in communities, and serves to varying degrees the surrounding area. Therefore, no split has been made for "rural" Alberta, north or south.

TABLE I

COMPARISON OF FIRE PROTECTION IN NORTHERN VERSUS SOUTHERN ALBERTA[1]

— Size And Value Of Fire Service —

Area	Number Of Vehicles	Per 1,000 People	Number Of Fire Station Bays	Per 1,000 People	Dollar Value Of Capital Equipment And Facilities Per Person
Total North: NADC Area	131	0.599	143	0.654	$102[3]
South: Sample Area[2]	121	0.698	124	0.715	$116[3]

1. More complete information is found in Appendix B.

2. Southern Alberta is represented by a sample area which includes: I.D.'s 1, 10, and 14; M.D.'s 14, 47 and 48; Counties 4, 5, 6, 8, 18, and 29.

3. Estimate based on standard costs.

Review of Table I on the facing page illustrates the existing physical or protection dimension in northern Alberta[1]. Clearly, there has been a substantial investment in protection services in the north to this point in time, with estimated capital expenditures of $102 per individual in the north versus $116 in the south. Given the existing poorer record of performance relative to fires in the north compared to the south, one might suggest that further expenditures on protection should be made in the north. However, a 14% greater expenditure ($116 versus $102 per person) is unlikely to compensate for a 100% difference in death rate overall, or the dollar loss variance of 100%. Consequently, accelerated expenditure on protection facilities, equipment, and manpower in the north does not appear as a likely solution to remedying the current poor performance record.

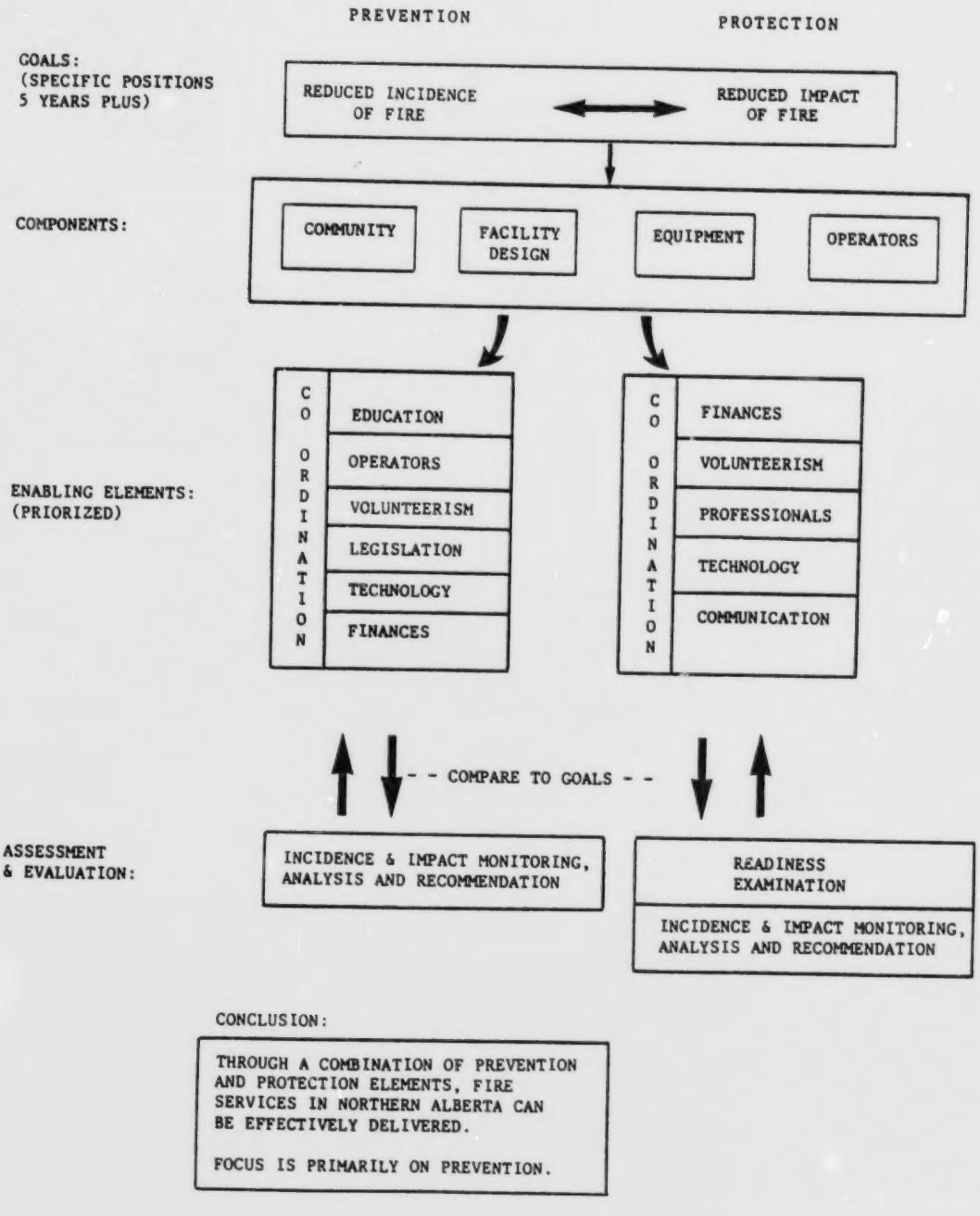
However, expenditures of resources (dollars and people) on prevention may be able to significantly influence the impact of fires, particularly in terms of preventing death or excessive dollar loss or injury, the key variances between the north and south. This is supported by various sources found in literature, and in the experience of several similar Canadian jurisdictions. Therefore, consideration to investments in prevention should be given.

SIMILAR SITUATION REVIEWS, COUPLED WITH EXTENSIVE LITERATURE REVIEWS, FOCUS A FIRE PREVENTION MODEL AROUND EDUCATION, SUPPORTED BY EXISTING LEGISLATION AND ENFORCEMENT

The Model on the following facing page depicts a general "Model" for Fire Prevention. It demonstrates the relationship between:

- Goals (reduced incidence and impacts of fires);
- Components (major focuses necessary or possible to take to achieve goals);

A FIRE PREVENTION AND PROTECTION MODEL



CONCLUSION:

THROUGH A COMBINATION OF PREVENTION AND PROTECTION ELEMENTS, FIRE SERVICES IN NORTHERN ALBERTA CAN BE EFFECTIVELY DELIVERED.

FOCUS IS PRIMARILY ON PREVENTION.

- Enabling Elements (acts or factors that work through components to achieve goals);

- Assessment and Evaluation (test to ensure efforts are achieving desired results, aiding in effort refinement if necessary).

Studies of various public programs (such as fire prevention) indicate that three elements need to be in place to have any measureable impacts:

- Legislation;
- Education;
- Enforcement.

Legislation for fire prevention centers around building and fire standards. These are in place. Enforcement to these standards becomes difficult given the remote nature of many buildings, but is actively undertaken by the Government.

Generally, it was felt by those interviewed, and as was stated in several informed studies of the area, that education on fire prevention is not delivered as extensively in the north as desireable at any age or community setting. This should therefore be a focus of any new efforts, supporting existing legislation and enforcement activities.

THE FIRE PREVENTION MODEL FOR NORTHERN ALBERTA EMPHASIZES A SCHOOL-BASED EDUCATION PROGRAM

Given the need to focus on prevention and education, immediate consideration must be given to the educational efforts that could be conducted. Review of various alternatives indicates that an Alberta developed program, Fire and Fire Safety, should be introduced into the northern Alberta school systems. While it is currently only Kindergarten to Grade 3, this should be extended to the upper grades to reinforce fire safety.

FIRE PREVENTION MODEL FOR NORTHERN ALBERTA

GOALS

- Reduced Incidence
- Reduced Impact

COMPONENTS

- Community
- Equipment
- Operators
- Facilities

ELEMENTS

Element	Proposed Activity
Education	. Basic Education - Fire and Fire Safety (K-3)* - Integration to Health/Safety Program . Community Education: - Community Club Programs - Advertising - Home and School - Follow-up to Home Inspections
Operators	. Regional Fire Liaison Officers: - Community Based - Liaison to Alberta Fire Prevention Officers - Key School Interface . Alberta Fire Prevention Officers: - Facility Design - Customer Education on Products - Institutional Inspections . School Board: - Policy Direction . Teacher: - Fire & Fire Safety Delivery - Ongoing Course Integration . Fire Personnel
Community	. Community Club Programs: - e.g. Fire Week; Speaker Program . Church Programs . Health Unit Contact Program . Community Organizations . R.C.M.P.
Volunteerism	. Home Inspection Program . School Program Assistance . Community Organization Leadership
Legislation	. Alberta Building Code . Fire Prevention Act
Technology	. Smoke Detector and Fire Extinguisher Program . Product Education at Point of Sale . "911" System . Emergency Life Support System

*Expansion to Grade 12 over time.

ADDITIONAL FIRE PREVENTION MODEL ELEMENTS INCLUDE COMMUNITY PROGRAMS AND ADULT EDUCATION

The influence of the child's education back in the home environment will be substantial. However, to support this, a program should be developed to gain the support and involvement of the community groups in each area, for example, in the sponsoring and advertising of fire safety weeks or special focuses (e.g. where there has been a series of fires through careless smoking). This shall support the child education component of the fire prevention effort.

Other community activities will also be designed over time. For example, a program to work with local suppliers of inflammable products may be started to ensure that the purchasers are well aware of the precautions that should be taken. An outline of proposed elements of the model are provided on the facing page.

ADMINISTRATION OF THE SUGGESTED FIRE PREVENTION MODEL DEMANDS ADDITIONAL STAFF AND FUNDING TO ENSURE SUCCESS

The final effectiveness of the Fire Prevention Model will require effective administration, continuity, and enthusiasm to the effort. Public attitudes and behavior are not easily influenced. Consistency and evidence of value are required. Therefore, a position is suggested to be implemented called a Regional Fire Liaison Officer who would work with existing Department of Labour personnel and fire personnel in the region. As well, the education component of the model would be led by this individual, garnering and keeping the school systems' support, at the administration and teacher levels.

IMPLEMENTATION SCHEDULE

Item Sequencing	Time
• Steering Committee Recommendations	June to September 1983
• Steering Committee Recommendations to Alberta Fire Chiefs Association	June to September 1983
• NADC Review and Recommendations	June to September 1983
• Approval of Phase I Funding	September to December 1983
PHASE I	
• Community -- Area Review and Commitment	January to March 1984
• Regional Fire Liaison Officer Staffing Decision	March 1984
• School Division Contact and Approval	January to March 1984
• Specific Program Design and Development (Includes detailed examination of Phase I statistics for large problem/ benefit areas)	March to June 1984
• Community Club Contact	June 1984
• Volunteers Identified	July 1984
• Community Education - Home Inspection - Community Clubs	August 1984
• Teacher Education Re: Fire and Fire Safety	September to December 1984
• Full Phase I Program Implemented	March 1985
• Phase I Results, Annual Assessment and Evaluation	December 1985-89
• Status Review (ongoing) with Evaluations Committee	December 1984-89
PHASE II	
• Program Planning	January and February 1988
• Evaluations Committee Decision On Next Phases	January 1989

The specific suggestions outlined in the previous paragraphs suggest that additional staff, and consequently funding, will be necessary to make the new model operational. One might consider using solely volunteers or existing organizations. However, current results indicate that existing staff levels are not adequate to effect the necessary changes, and in such a highly dispersed environment, it seems unreasonable to think of a closely tied and consistent volunteer network acting on mostly its own initiative.

THE COST OF THE NEW MODEL AND THE APPARENT NEED FOR A RURAL NORTHERN EMPHASIS SUGGESTS A PHASED APPROACH SHOULD BE TAKEN

An estimate of the maximum additional manpower to implement and operate the Fire Prevention Model throughout northern Alberta is eight full-time positions. This represents a cost for salaries and related costs of $480,000 per year. This will need to be further increased by program development costs such as school curriculum and product supplier education programs, estimated to require an additional $20,000 per year for three (3) years to ensure completion to the Grade 6 level.

Analysis also concluded that rural northern Alberta is the most significant problem area. Therefore, to minimize the impacts of additional costs and to test out the merits of the program in the largest return areas, an implementation program is suggested that focuses on the isolated communities within the I.D. #17 area and extending the Model to other municipalities once a successful exposure has been gained. A chart outlining the steps toward successful implementation is shown on the facing page.

Specifically, Phase I will result in a Fire Prevention Model being implemented with the following characteristics:

- Appointment of Regional Fire Liaison Officer (Cost: $50,000, salary and benefits, plus travel and accommodation, and office support);
- Implementation of Fire and Fire Safety into Kindergarten to Grade 3 (Cost: $2,000, materials);
- Establishment of Community Club Program, with Fire Safety Weeks (Cost: $3,000, materials);
- Establishment of Home Inspection Program focusing on ensuring adequate distribution of smoke detectors, home fire extinguishers, and escape route definition (Cost: $5,000, materials). Note: If smoke and fire detectors were to be paid for by the Government, Phase I costs would be approximately $60,000;
- Funding of the development of the next grade level of Fire and Fire Safety (Cost: $20,000, staff).

The Phase I effort could center around communities such as Atikameg, Cadotte Lake, Calling Lake, Chipewyan Lakes, Desmarais, East Prairie, Gift Lake, Grouard, Kikino, Little Buffalo, Loon Lake, Panney Camp, Peerless Lake, Sandy Lake, Trout Lake and Wabasca. These were selected based on the criteria of:

- Small;
- Isolated;
- Primarily served by Northlands School Division;
- Protection support exists.

Phase I shall be evaluated over a five-year period to determine if better performance exists; as well as to determine the value placed on the effort by the local population. A positive rating will initiate a Phase II installation.

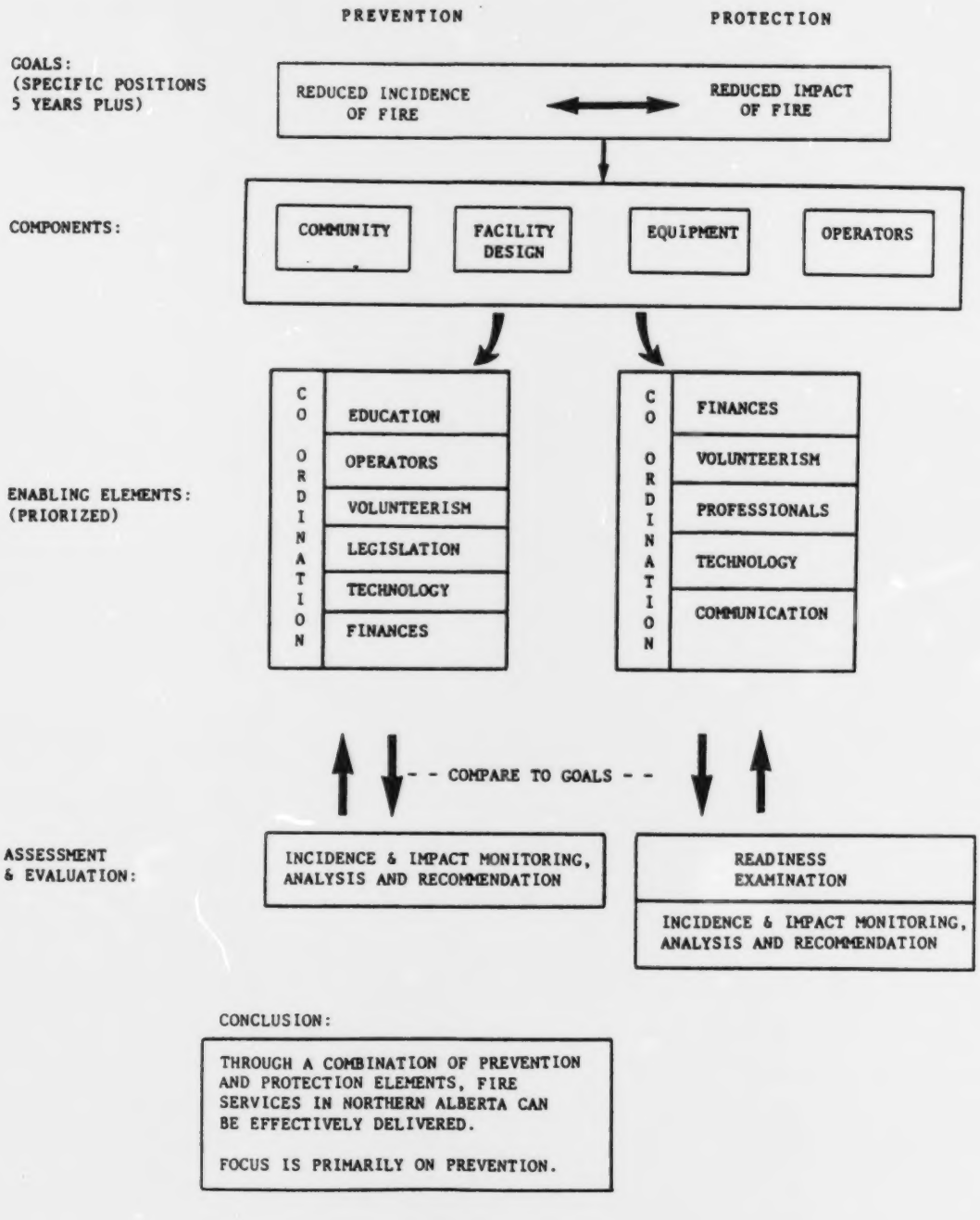
The costs of Phase I will include:

. Regional Fire Liaison Officer	$ 30,000
. Travel and Accommodation Costs	10,000
. Materials Costs	10,000
. Office Support	10,000
. Fire and Fire Safety Materials Development Support	20,000
	$ 80,000

The benefit is potentially significant in the saving of almost one life per 1,000 people, based on lowering the death rate to that of the provincial average, coupled with lowered injuries and fire loss.

The foregoing has summarized the concept of a most critically required Fire Prevention Model for northern Alberta, and outlined the major conclusions relative to its conception and operation. The following report begins by outlining the model in further depth, and describing the specific educational and community nature of the model. This is followed by a description of administrative and implementation considerations, plus assessment and evaluation standards.

A FIRE PREVENTION AND PROTECTION MODEL



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I

FIRE PREVENTION AND PROTECTION MODEL ANALYSIS FOR NORTHERN ALBERTA

The Model for Fire Prevention and Protection (refer to facing page) has as goals, a reduction of the incidence and impact of fires. To achieve these goals several components are emphasized, including: community; facility design; equipment; and operators. Each of these components has several "enabling elements" that in combination, work through the components to achieve the goals of fire prevention and protection. Finally, the Model indicates a need for ongoing assessment and evaluation to ensure that the prevention and protection goals are being achieved, and to establish the effectiveness of the various program efforts.

EXAMINATION OF FIRE STATISTICS FOR NORTHERN ALBERTA SUGGESTS A NEED FOR A SPECIAL FOCUS

The chart on the following page illustrates the relative severity of the fire problem in northern Alberta, northern rural Alberta, southern Alberta, and southern rural Alberta. Four statistics are compared:

- Number of fires;
- Dollar loss;
- Deaths;
- Injuries.

Clearly, the most serious problem (particularly for deaths and injuries) is in northern rural Alberta, where the death rate is 1.6 per 1,000 people versus 0.72 for southern rural Alberta. And generally, the north has a more serious fire problem than the south (i.e. 32 versus 30 fires per 1,000 people;

FIRE STATISTICS 1971-82

ALBERTA-NORTH, SOUTH, N. &S. RURAL

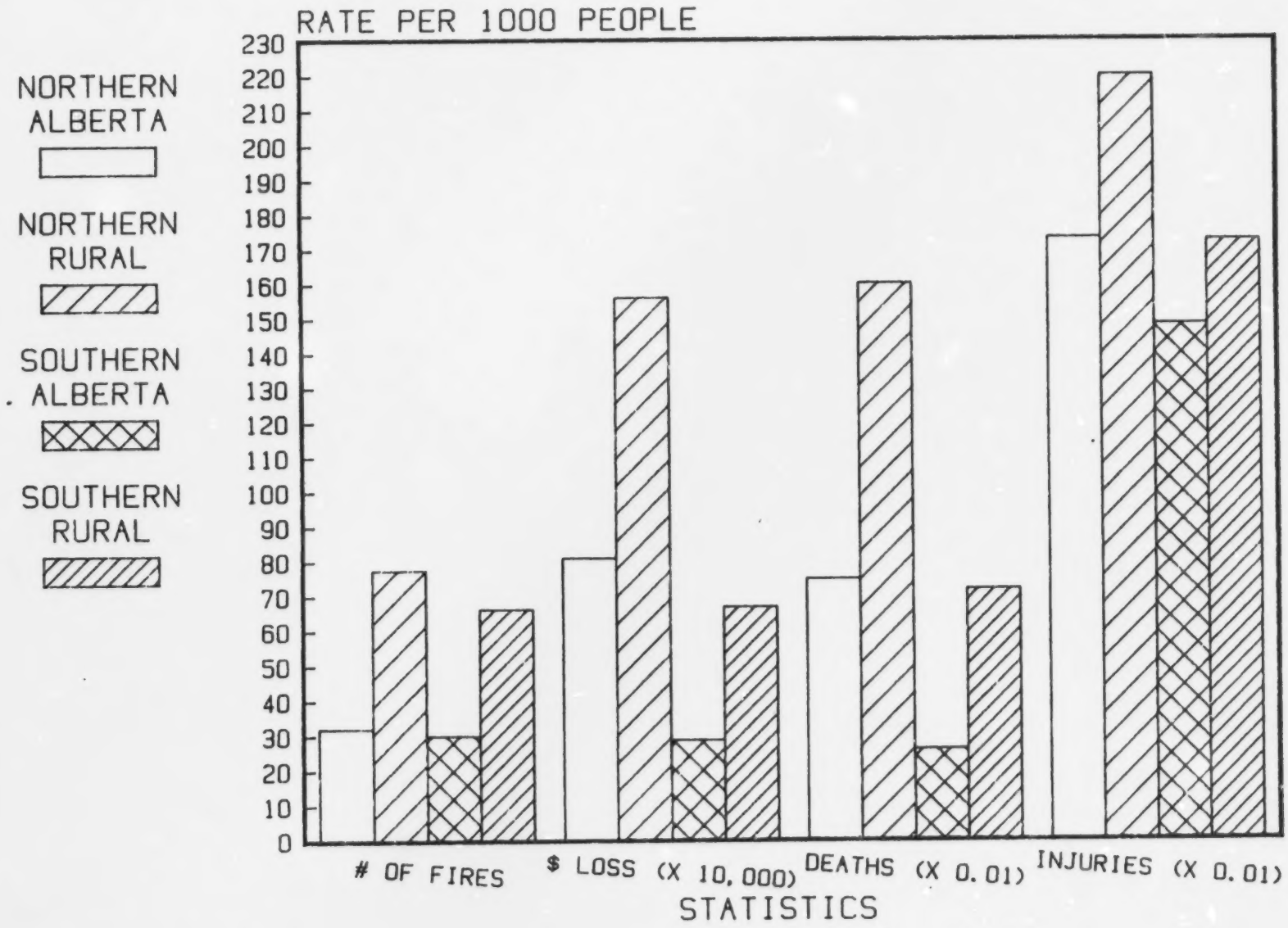

TABLE I

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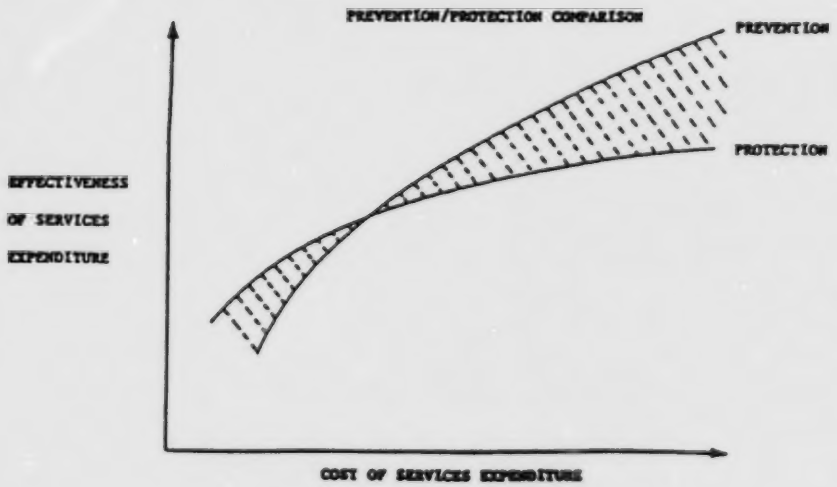
3. Estimate based on standard costs.

TABLE II



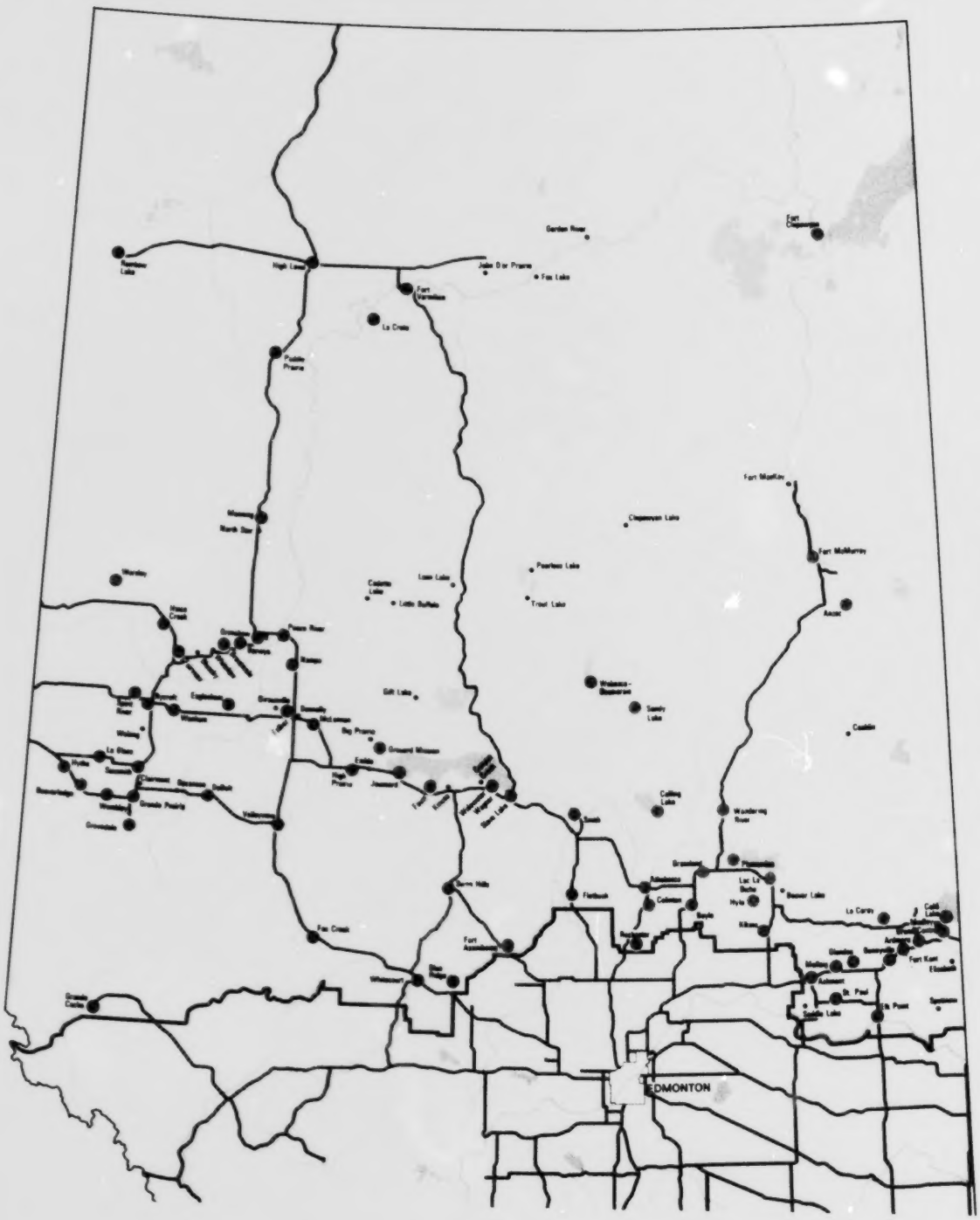
$810,000 versus $287,000 per 1,000 people in dollar loss; and 1.73 injuries versus 1.48 per 1,000 people). Consequently, it appears to be of high value to emphasize the development of a Fire Prevention and Protection Model for northern Alberta, with a specific focus on northern rural Alberta.

FIRE STATISTICS SUGGEST A SPECIAL FOCUS ON PREVENTION MAY BE THE MOST EFFECTIVE

The previously referenced chart indicated a general problem in the north in terms of impact and incidence of fire. Protection services (e.g. physical facilities, equipment, and manpower) are in place to a greater or lesser degree depending upon the area, but can be generally indicated to be in the same proportion as in southern Alberta. This is shown more fully in Table I on the facing page, where the value of these services is shown to be $102 per person in the north, versus $116 in the south. This is further outlined in Appendix B of this report, wherein the current situation is reviewed, and in the chart on the following page illustrating equipment locations.

Given the existence of similar protection services in the north as to the south, but with a significantly larger impact from fire, it becomes clear that consideration of a further emphasis on prevention in the north is required.

The concept of emphasizing prevention is supported strongly by a review of literature (see Bibliography in Appendix G for references), which indicates that the most effective application of funds in the longer term, particularly when referencing more isolated or less populated regions, is towards prevention. And it is further supported by other provincial jurisdictions experiences and professional opinion (see Appendix C for detailed comparison). This is not to preclude investment in protection, but rather to indicate that the effectiveness of a similar dollar expenditure on prevention versus protection, past some base level point, is greater. Table II (facing) demonstrates this relationship (but is not intended as an accurate numerical representation).



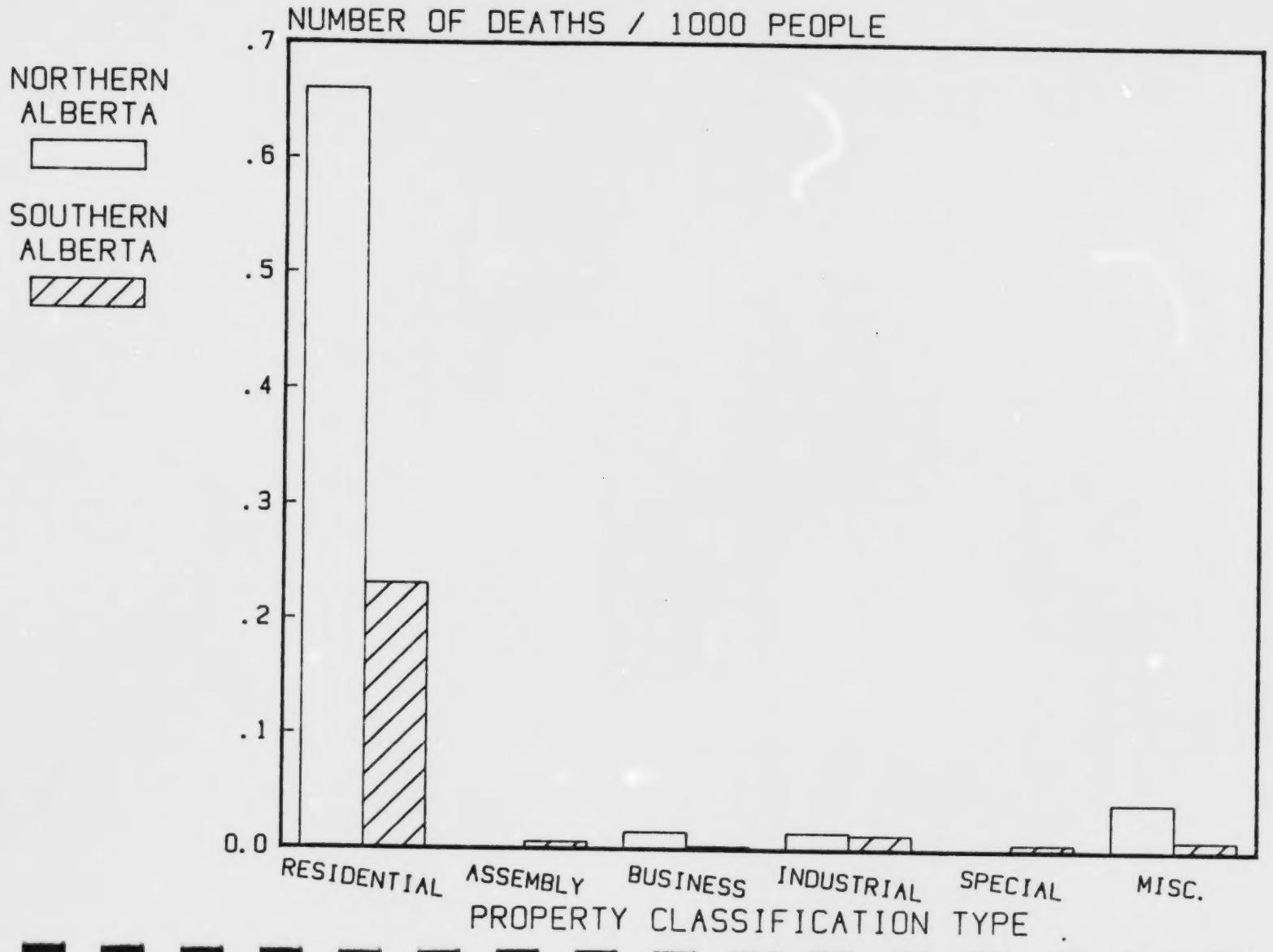
FIRE DEPARTMENTS IN NORTHERN ALBERTA DEVELOPMENT COUNCIL AREA 1983

● FIRE DEPARTMENT

Produced by the Alberta Bureau of Surveying and Mapping © 1983

FIRE STATISTICS-ALBERTA N VS. S

PROPERTY CLASSIFICATION



Another graphic illustration is shown on the facing page which demonstrates that over 90% of deaths in the north result from fires in the home. It is felt that prevention is critical to reducing this loss, particularly in isolated areas where protection services cannot be adequately delivered.

Consequently, this report focuses on the fire prevention element of the Fire Prevention and Protection Model.

THE GOAL OF FIRE PREVENTION IS TO LOWER BOTH THE INCIDENCE AND IMPACT OF FIRE

To quote an Alberta Labour, General Services Division document "Most fires progress through four distinct stages: first the incipient stage" (e.g. thermal combustion without signs of fire); "next the smoke stage; next the flame stage; and finally the high heat stage." A similar document from the Fire Prevention Canada Association emphasizes "sixty ways to prevent fire in your home". The final part of this latter document suggests "what to do if fire strikes". Combining these two references, we can see that the reduction of fire incidence and impact through prevention requires the following focuses:

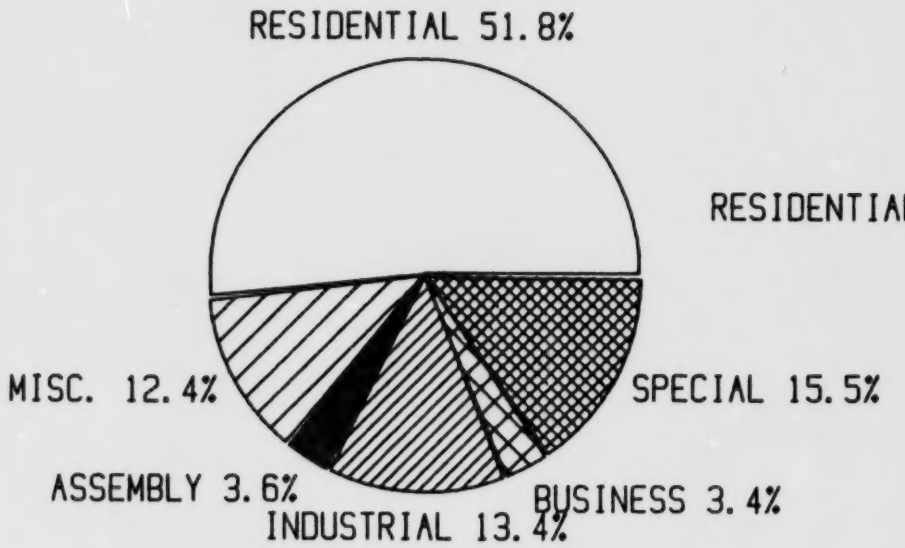
- How to act to ensure that fires do not have an opportunity to start;

- How to detect and minimize impacts during the various stages of a fire (e.g. how to prevent death or injury from fire by knowing how to act in any of the four stages of fire).

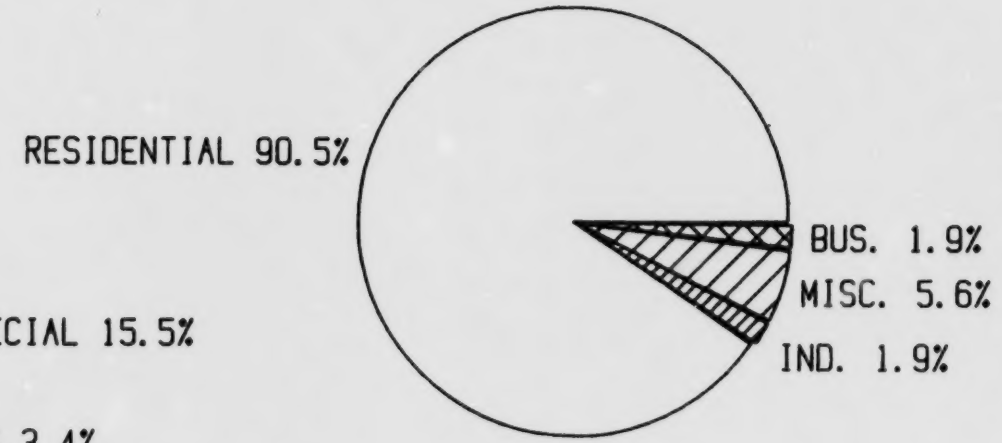
While it is apparent that activities such as having home fire extinguishers or smoke detectors could greatly aid in minimizing impacts, we include this type of activity within prevention rather than protection. That is, we define protection as being the more major equipment, perhaps municipally operated equipment, facilities and manpower.

N. ALBERTA- STATS BY BLDG. TYPE

NUMBER OF FIRES



NUMBER OF DEATHS



STATISTICS INDICATE RESIDENTIAL FIRES TO BE THE SINGLE LARGEST CONCERN

The pie charts on the facing page demonstrates that ninety percent (90%) of all deaths in northern Alberta result from residential fires. And that fifty-one percent (51%) of all fires occur in residences. Consequently, a focus on residential fire prevention appears to be the best use of scarce resources. Further references to this and other similar, supporting statistics may be found in Appendix A, but the message is clear: concentration on residential fires is critical to controlling deaths by fire in northern Alberta.

THE CRITICAL FOCUS OF PREVENTION FOR NORTHERN ALBERTA WILL BE ON COMMUNITY, SUPPORTED BY FACILITY DESIGN, EQUIPMENT AND OPERATORS

Given the high rate of residential fire problems in the north, the Model for prevention in the north must focus on the community (i.e. an overall community focus to result in more awareness and effective action in the home).

This community focus must be supported by the concepts of building design, equipment, and operators. The design of buildings is currently controlled through the Alberta Building Code and the use of the building is controlled by the Fire Prevention Act and its regulations. The continued enforcement of this code is critical to ensuring that fires do not start too easily (e.g. through poor stove installation) or do excessive personal harm (e.g. through limiting injury).

Many equipment elements are critical to fire prevention success. The smoke detector is an important aid in preventing death or injury as are home fire extinguishers.

A similar comment is possible for labour or operators. While the volunteer or permanent fire force may be looked at as an element of protection, the community workers, school personnel, paid local authority and provincial employees are critical to ensuring an ongoing emphasis to the prevention effort.

THE FIRE PREVENTION MODEL FOR NORTHERN ALBERTA MAY BE REFERRED TO AS A PUBLIC PROGRAM REQUIRING LEGISLATION, EDUCATION, AND ENFORCEMENT FOR SUCCESS

Public programs have been demonstrated to be most successful when three elements are combined: legislation, education, and enforcement.

Legislation already exists in the form of the Alberta Building Code and Fire Prevention Act. Similarly, these codes are enforced (although in isolated communities this becomes very difficult given cost and access). Further development of legislation or enforcement may be required to fully actualize prevention goals, although current assessments from literature indicate that current levels are all that could be presumed to be reasonable.

Therefore, the focus must be on the third element, education, largely centered around the community to deal with the large residentially oriented problem.

THE FIRE PREVENTION MODEL FOR NORTHERN ALBERTA FOCUSES ON COMMUNITY AND EDUCATION WITH SUPPORT FROM COMMUNICATIONS, OPERATORS, VOLUNTEERISM, EQUIPMENT, AND LEGISLATION

The chart facing page 1 summarized an overall Model for fire prevention and protection, and it provides the framework for the specific Fire Prevention Model that is developed in the next section. The Model continues to emphasize a need for ongoing assessment and evaluation to ensure that the techniques employed are producing desired results. Also, although not mentioned in the Model, it is critical to the success of the Model that a formal commitment and plan be made for implementing the Model. This is dealt with in depth in a later section on implementation.

FIRE PREVENTION MODEL FOR NORTHERN ALBERTA

GOALS

- Reduced Incidence
- Reduced Impact

COMPONENTS

- Community
- Equipment
- Operators
- Facilities

ELEMENTS

Element	Proposed Activity
Education	. Basic Education - Fire and Fire Safety (K-3)* - Integration to Health/Safety Program . Community Education: - Community Club Programs - Advertising - Home and School - Follow-up to Home Inspections
Operators	. Regional Fire Liaison Officers: - Community Based - Liaison to Alberta Fire Prevention Officers - Key School Interface . Alberta Fire Prevention Officers: - Facility Design - Customer Education on Products - Institutional Inspections . School Board: - Policy Direction . Teacher: - Fire & Fire Safety Delivery - Ongoing Course Integration . Fire Personnel
Community	. Community Club Programs: - e.g. Fire Week; Speaker Program . Church Programs . Health Unit Contact Program . Community Organizations . R.C.M.P.
Volunteerism	. Home Inspection Program . School Program Assistance . Community Organization Leadership
Legislation	. Alberta Building Code . Fire Prevention Act
Technology	. Smoke Detector and Fire Extinguisher Program . Product Education at Point of Sale . "911" System . Emergency Life Support System

*Expansion to Grade 12 over time.

II

THE PROPOSED FIRE PREVENTION MODEL FOR NORTHERN ALBERTA

The previous section demonstrated that the fire-related statistics for Alberta suggest a need to focus on fire prevention firstly in northern Alberta, and more specifically in northern rural Alberta. This section describes the elements that are suggested to form the parts of the Fire Prevention Model.

AN INTEGRATED FIRE PREVENTION EFFORT IS SUGGESTED, WITH A PRIMARY FOCUS ON COMMUNITY AND EDUCATION

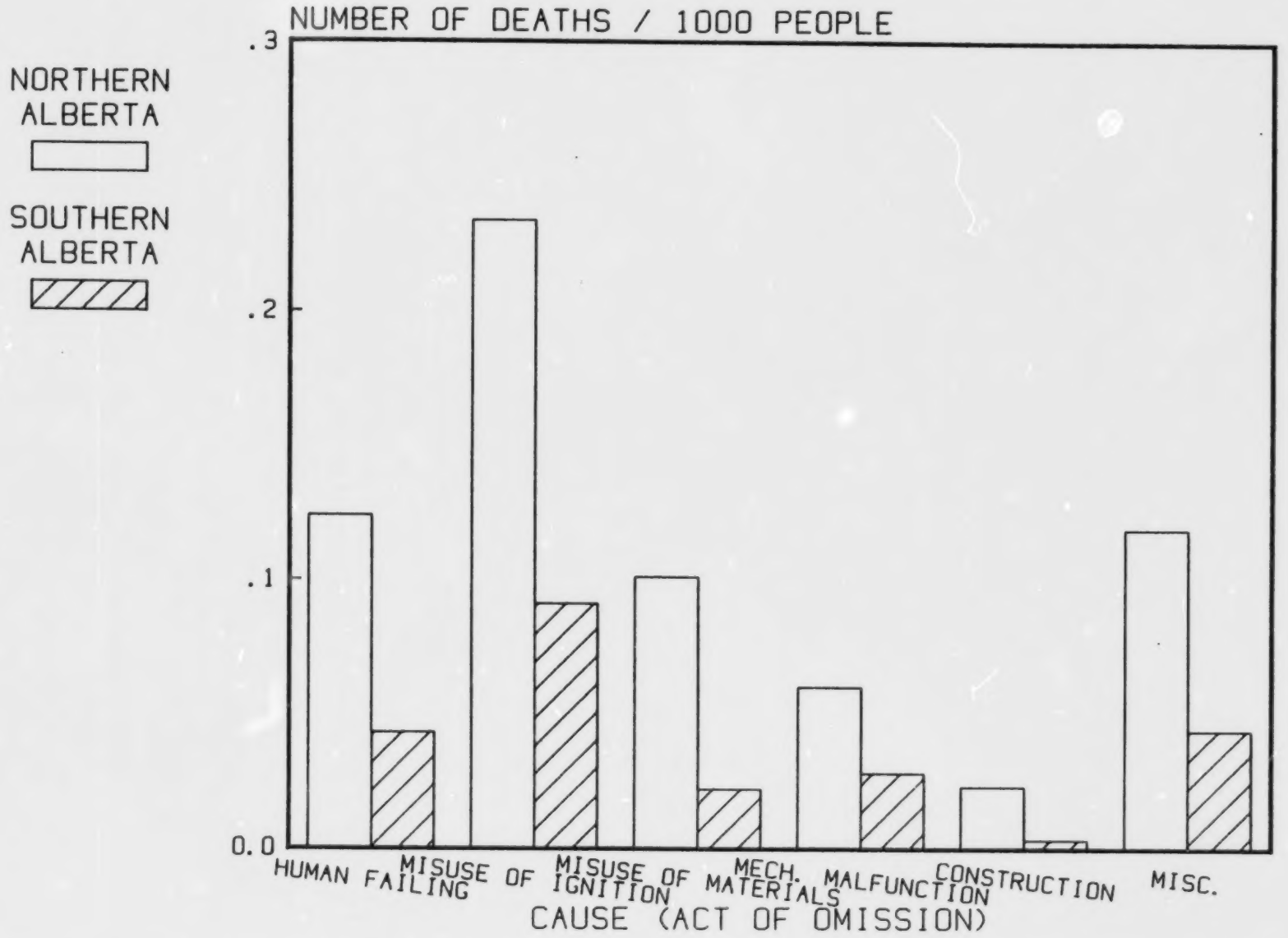
The chart on the facing page illustrates the Fire Prevention Model for northern Alberta in terms of the nature of its elements. There are two sections, the first describing the components that could be emphasized by fire prevention, and secondly, the elements that represent the specific actions taken to achieve the goals of the Fire Prevention Model -- reduced incidence and impact of fires.

THE PREVENTION MODEL PRESUMES THAT BEHAVIOR PATTERNS (HABITS) FORM EARLY AND ARE DIFFICULT TO MODIFY

The model of prevention focuses on education. And while it involves both adult and children programs, the main long-term hope lies with the children. This is because of a suggestion that behavior can be modified in adults, but that it is much more effective to establish preferred behavior patterns in the child. Given the severity of the current problem in northern Alberta, one cannot solely depend upon this technique, but it does provide the foundation in the longer term, and should result in the most substantial changes.

FIRE STATISTICS-ALBERTA N VS. S

OVERALL CAUSE OF FIRE



It should be noted that included in the definition of "behavior" is the awareness of the requirements placed on the individual in terms of fire prevention, coupled with the complementary actions. This definition is required based on the statistical analysis presented earlier in this report, and included as Appendix A. These show that the majority of problems occur in the home (residence) and that coupled with this, some form of human failing can most often be tied to the cause of ignition. The facing chart shows that the deaths caused by human failing (19%), and the mis-use of materials or ignition (37%) all together account for a total of 56% of all deaths in in the north. Consequently, "behavior" has been inadequate.

A REGIONAL FIRE LIAISON OFFICER COMPLEMENTS THE COMMUNITY AND EDUCATIONAL BASED FIRE PREVENTION MODEL

The Fire Prevention Model outlined in the chart facing page 1 outlines many specific elements that are suggested for application in the north. Prior to describing each, it should be noted that in addition to the previously described community and education focus, we have suggested the introduction of a Regional Fire Liaison Officer into the north. This suggestion is predicated on the assumption that the overall program requires full-time support to develop and implement.

The Regional Fire Liaison Officer's job description will entail the delivery responsibility of the total Program (i.e. Fire and Fire Safety within the school curriculum, community liaison, and implementation of the home program) with an essential supplementary component being required and delivered by the existing Alberta Fire Prevention Officers.

The following paragraphs describe the specific Fire Prevention Model elements.

DESCRIPTION OF THE MODEL ELEMENTS

1.0 EDUCATION ELEMENT

1.1 BASIC EDUCATION

1.1.1 Fire And Fire Safety -- Kindergarten To Grade 12

Two major programs exist for school based fire education in Alberta. One is a United States developed, program called Learn Not To Burn. The other was developed co-operatively in Edmonton using fully Canadian materials, called Fire And Fire Safety. Appendix B outlines the characteristics of each and the rationale for selecting Fire And Fire Safety. In summary, the Fire And Fire Safety program is easier to use than Learn Not To Burn, as it is Canadian and generally well accepted by the teachers.

Unfortunately, the Fire And Fire Safety materials have only been developed to Grade 3 to this point in time. Over the coming years, it is planned to complete this development up to the Grade 6 level with integrated materials also being designed for specialized junior and senior high school programs such as practical arts and the health program (1 to 12). This effort should be encouraged to assist northern Alberta. The development of the Fire And Fire Safety program has been conducted by the City of Edmonton's Public Relations (Public Safety and Education) and Fire Departments. The City has stated that the Fire And Fire Safety courses and their supporting materials can be duplicated for use by school divisions, for example, Northlands School Division, free of charge. The City is fully committed to the ongoing development of the program (at the approximate rate of one grade per year) and as such, would also not intend on charging the school division for future development costs of the program.

Should the decision be made that development was required by the north beyond one grade per year, funding of at least $20,000 per grade would be required and could be cost-shared with the City of Edmonton.

1.1.2 Integration To Health/Safety Programs

The Department of Education sets minimum curriculum standards, and each school division and school further develop their own approach. Specific examples include Health and Safety curriculum. It will be important for the Regional Fire Liaison Officer to liaise closely with this effort to ensure maximum usage of relevant expertise, particularly in integrating Fire and Fire Safety. Continued support by the Department of Education to upgrade minimum curriculum standards provincially would of course add incentive to the northern efforts.

1.2 COMMUNITY EDUCATION

Several activities have been outlined on the chart for community education. It is not the intent that all of these would be undertaken, however, they do provide the type of activity that the Regional Fire Liaison Officer may choose to initiate. In particular, we suggest that the Community Club and Home Inspection follow-up activities (coupled with the effort to ensure adequate smoke detectors and fire extinguisher coverage) be undertaken. The activities are both described in later sections.

The other activity that should be undertaken for Community Education is advertising. The distribution of materials outlining practical (and statistically relevent) situations and preventative actions may help to point out simple features that can be of immediate effect. For example, the Safety Division of Alberta Labour distributes pamphlets on wood stove

installation and operation, and has practical demonstrations of the results of leaving irons or other appliances unattended. These could be modified or specifically directed at the apparent problems facing the north. This should be focused at the community level in support of such things as Fire Safety Week and demonstrations by Fire Prevention Personnel (i.e. concentrated efforts).

2.0 OPERATORS

2.1 REGIONAL FIRE LIAISON OFFICER

As previously described, the Regional Fire Liaison Officer acts as the focal point for the Fire Prevention Model. Working with the Local Authority, the Regional Fire Liaison Officer will have direct responsibility to the Alberta Fire Prevention Branch and will ensure that plans are developed and implemented.

Critical interfaces for the Regional Fire Liaison Officer include:

- The community at large;
- Local fire personnel;
- Community leaders;
- Businesses with high public contact;
- Church;
- Alberta Fire Prevention Officers;
- Local school boards;
- Teachers and school administrators;
- Department of Education;
- Social Services and Community Health;
- R.C.M.P.

2.2 ALBERTA FIRE PREVENTION OFFICERS

The Alberta Fire Prevention Officers currently conduct a program of institutional inspections and general educational programs throughout Alberta, including the north. It is suggested that they continue in this capacity, as well as their role (active and supporting) in building occupant safety and fire code inspections. Their involvement forms the enforcement characteristic of the Fire Prevention Model, as well as providing a linkage to legislation and supporting the educational thrust.

2.3 SCHOOL BOARD

The school board plays a key role as community leaders and can greatly influence the acceptance of the efforts throughout their jurisdiction. Prior to the teachers becoming involved, the school board must accept and support Fire and Fire Safety or other educational materials.

2.4 TEACHERS

The teachers in the school system provide a vital link to the success of the Fire Prevention Model. They will be the most important delivery tool in the Fire And Fire Safety effort. And they have the opportunity to use classroom activities to reinforce the concepts brought forward in those materials. While the school system and Department of Education set minimum standards of performance in these areas, willing support and interest will result in superior products, and may well encourage other community based programs.

2.5 FIRE PERSONNEL

The existing base of fire personnel (i.e. fire fighters), both volunteer and non-volunteer, can provide a valuable local resource to the other operators of the program. The program is viewed as assisting local fire personnel in prevention efforts by:

- Co-ordinating large groups of volunteer help to carry out prevention tasks which are too time consuming to be fully completed by just the fire personnel;

- Enhancing the awareness and understanding of the fire personnel's role within the commnity;

In return, the program will rely upon the fire personnel for their commitment and support in order to make the program fully successful.

3.0 COMMUNITY

3.1 COMMUNITY ORGANIZATION PROGRAMS

Several northern communities have active community organizations. These groups form a social, cultural and charitable fibre that, if tapped, can create significant change. The Regional Fire Liaison Officer will find the liaison with these groups in sponsoring Fire Prevention Weeks or special educational thrusts very valuable.

Unfortunately, many smaller settlements or rural people do not have this linkage. Therefore, other community groups are referenced as well.

3.2 CHURCH

The church is still a major influence in many communities, no matter their size or isolation. Through church groups and programs, the Regional Fire Liaison Officer will find ways to communicate the key points in fire prevention. One example would be to act through the church (or other group) after an occurrence of a fire that could have been prevented.

3.3 HEALTH UNIT CONTACT

By informing and supplying the health unit with materials on fire prevention, the Regional Fire Liaison Officer may ensure that some people, who otherwise wouldn't be contacted, have an opportunity to be exposed to fire prevention. Given health unit workloads however, this is not likely a high impact area.

3.4 R.C.M.P.

The RCMP is a mainstay of northern communities, and more generally, the rural north. They know the people and the problems of the area. It is critical that their support and co-operation be gained by the Regional Fire Liaison Officer, for example, to help reinforce fire safety.

4.0 VOLUNTEERISM

Volunteers have been described as the true strength of a successful community effort. The Regional Fire Liaison Officer will require the assistance of community volunteers to make a significant impact on fire prevention. Specific examples of usage would include:

- Assistance in providing a Home Inspection Service, including timed follow-ups (coupled with school-based home safety checks);

- Assistance in school education efforts through demonstrations and tours;

- Participation as community organization members.

5.0 LEGISLATION

Currently, there is adequate legislation in Alberta governing the design, construction and fire prevention for all buildings. However, the isolated and economic characteristics of northern Alberta often lead to less than full adherence to the legislation. And it is difficult to fully enforce the adherence for these same reasons. Consequently, legislation is a necessary part of the Fire Prevention Model, but it is not looked to for markedly improving the current situation.

6.0 TECHNOLOGY

Several examples of technological aids to fire prevention have been suggested as worthwhile additions to the northern Alberta situation. In particular, smoke detectors and fire extinguishers are critical elements. Other aids may not be feasible at this time but are prescribed for your review.

6.1 SMOKE DETECTORS AND FIRE EXTINGUISHERS

As so many deaths are in the residences within the north (i.e. 90% of all deaths in the north), and that 51% of all fires occur in the residence, there appears to be significant benefit in more aggressively introducing the usage of smoke detectors and home fire extinguishers. This is particularly true for the rural areas where conventional protection services are not so readily available. Coupled with the provision of these low cost aids should be an instructional and education program to ensure proper usage. This might be coupled with home inspections. (Note: The possible sharing of costs in the northern rural area might also be considered in light of the significant death rate, twice the northern rate and six times the southern rate. Currently, the Rural Housing Assistance Program (RHAP) does include smoke detectors as a part of their program. Consideration to an expanded program may be valuable.) Estimated costs for purchasing and installing a home detector-extinguisher program for Phase I have been set at $50,000 to $75,000. (Cost estimates based on 750 homes at $80 each.) Benefits would be in reduced death/injury due to early warning.

6.2 "911" SERVICE

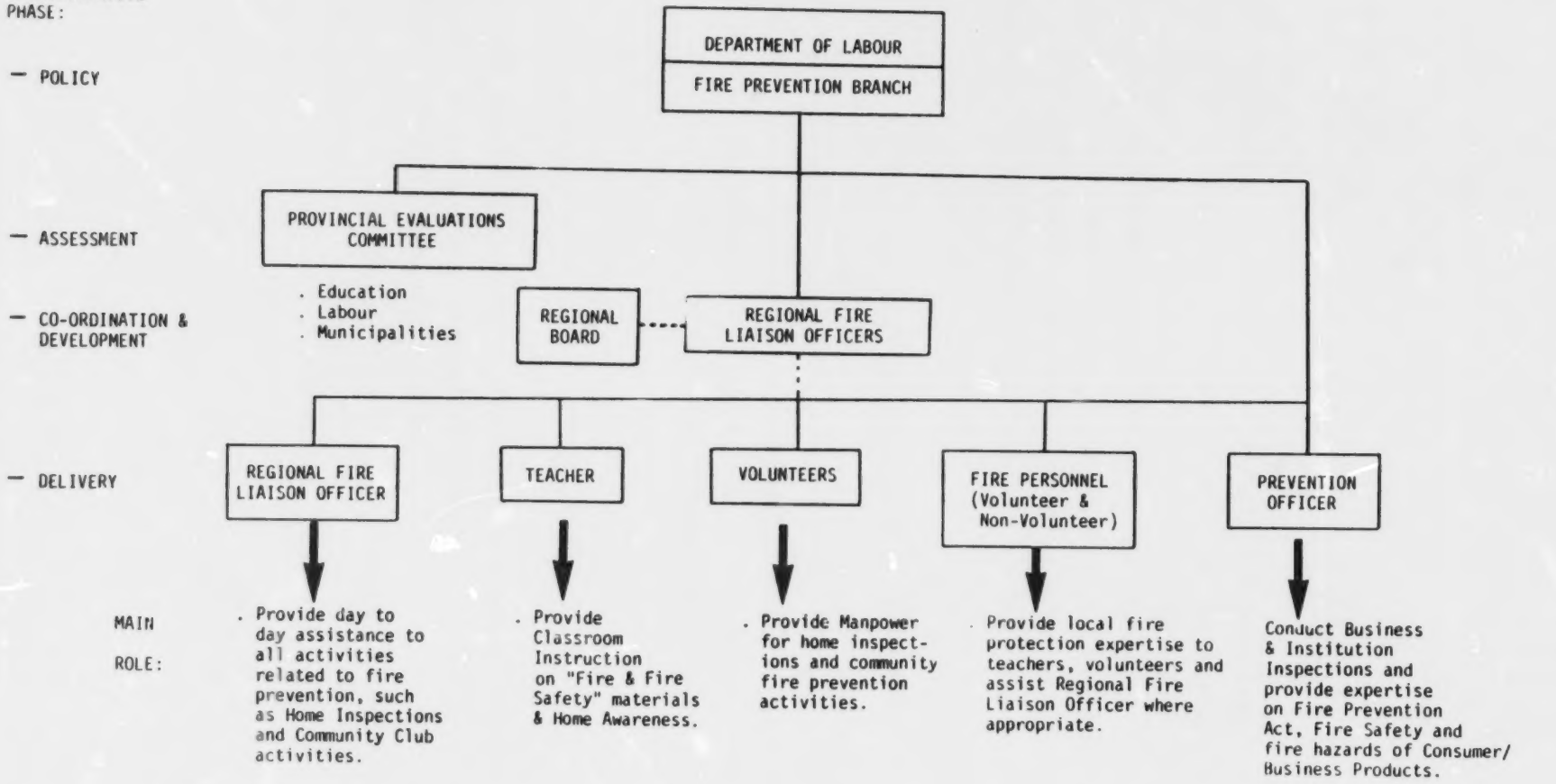
Alberta Government Telephones prepared a study on introducing a 911 provincial service. While fire prevention and protection were only one element of the benefit of this service, it does hold significant interest and value in this regard. However, the study shows costs to be of a large magnitude (i.e. approximately $9 million), and at this time is not a priority item for introduction. Appendix D provides a more complete review of the 911 technology and the reasoning for the Committee's position regarding 911.

6.3 EMERGENCY LIFE SUPPORT SYSTEM

In examining this potential system, the Steering Committee determined that it would be unacceptable at this time to accept or reject the concept solely on the merits of fire prevention. Rather, it is a complex and critical enough item to merit separate consideration.

The next sections of this report outline the administrative components of the Fire Prevention Model for northern Alberta, and implementation considerations, including a review of the assessment and evaluation conditions for the Model.

ADMINISTRATIVE STRUCTURE OF THE FIRE PREVENTION PROGRAM


ADMINISTRATIVE PHASE:
— POLICY
— ASSESSMENT
— CO-ORDINATION & DEVELOPMENT
— DELIVERY
DEPARTMENT OF LABOUR
FIRE PREVENTION BRANCH
PROVINCIAL EVALUATIONS COMMITTEE
. Education
. Labour
. Municipalities
REGIONAL BOARD
REGIONAL FIRE LIAISON OFFICERS
REGIONAL FIRE LIAISON OFFICER
TEACHER
VOLUNTEERS
FIRE PERSONNEL (Volunteer & Non-Volunteer)
PREVENTION OFFICER
MAIN ROLE:
. Provide day to day assistance to all activities related to fire prevention, such as Home Inspections and Community Club activities.
. Provide Classroom Instruction on "Fire & Fire Safety" materials & Home Awareness.
. Provide Manpower for home inspections and community fire prevention activities.
. Provide local fire protection expertise to teachers, volunteers and assist Regional Fire Liaison Officer where appropriate.
Conduct Business & Institution Inspections and provide expertise on Fire Prevention Act, Fire Safety and fire hazards of Consumer/ Business Products.

* Comprised of Participating Local Authorities (Funding Agencies)

--- Represents liaison or leadership relationship. Regional Fire Liaison Officer is directly responsible to the Fire Prevention Branch; liaises with the Local Authorities and all operators in the Model.

III

ADMINISTRATION

EXISTING PROVINCIAL, REGIONAL AND LOCAL ADMINISTRATIVE ORGANIZATIONS PROVIDE A SOLID BASE

The Fire Prevention Model will be administered through a Regional Fire Liaison Officer organization (refer to the facing page). This organization will be built upon and supported by a strong base of existing expertise at various levels of government.

The design of the program's administrative organization will ensure that existing capabilities are well utilized and that any gaps in the delivery of fire prevention are filled.

The Regional Fire Liaison Officer organization must reflect the realities of the current environment for fire prevention in northern Alberta. It must ensure that the expertise of existing provincial groups are drawn upon while at the same time, recognizing the necessity for local visability and initiative. Specifically, the organization must:

- Draw upon the strong leadership capabilities of the Fire Prevention Branch;

- Provide local presence to reinforce community efforts and to ensure that materials are well communicated, understood, and used at a local level. (Note: This would require working with current community groups, plus building the base of volunteer help including the efforts of fire fighting personnel);

- Provide additional capability for the delivery of fire prevention activity;

- Offer regional coverage to ensure some economies of scale and proper co-ordination of professionals at a variety of levels;

- Ensure that the program is delivered in such a manner that a high degree of enthusiasm and innovation is instilled within the various communities.

In responding to the above demands of the current environment, the Regional Fire Liaison Officer organization will revolve around the key groups of:

- Fire Prevention Officers;
- Teachers;
- Fire personnel;
- Community groups;
- Individual volunteers.

These groups will work to help integrate the three levels of provincial, regional and local organizations.

ADMINISTRATION IS CENTRALIZED AROUND THE REGIONAL FIRE LIAISON OFFICER

Administrating the Fire Prevention Program through a Regional Fire Liaison Officer organization responds to the general strengths and weaknesses of the current systems of delivery. The Fire Prevention Model presented in this report highlights the need for co-ordination along the various enabling elements of fire prevention:

- Education;
- Operators;
- Volunteerism;
- Legislation;
- Technology;
- Finances.

The main thrust of the Administration Model is to enhance the overall co-ordination of these elements.

As illustrated in the previous chart, the administrative structure for the Fire Prevention Model outlines four administrative phases of the program:

- Policy;
- Assessment;
- Development and Co-ordination;
- Delivery.

The Model assigns responsibility for these phases to various individuals who will play a role in the program.

The following paragraphs discuss how each of these phases will be administered.

1.0 POLICY — FIRE PREVENTION BRANCH

The Department of Labour's Fire Prevention Branch should oversee the program from a policy perspective and take the lead role in directing the program through to the point of full implementation.

Once the program is in place, the Branch should continue to provide assistance and guidance to all other components of the program, working through the Regional Fire Liaison Officer and the Provincial Evaluations Committee.

Throughout the implementation of the program, a large degree of effort will be required to organize and put in place all of the various program elements.

A major challenge for the Branch will be to establish a joint effort with the various Local Authorities in building an effective system of Regional Fire Liaison Officers.

The Fire Prevention Branch will have direct administrative authority over the Regional Fire Liaison Officers who will have to establish an effective working/liaison role with the Local Authorities to ensure success of his/her role. In addition, the sharing of the Regional Fire Liaison Officer's costs between the Provincial and Local Authorities will provide both parties with a high level of influence over the Regional Fire Liaison Officer. (Note: It has been suggested that for ease of implementation, cost-sharing might be 100% Provincial in the Phase I period, and a lesser amount in the subsequent years.)

The Fire Prevention Branch should provide regular reports to the Evaluations Committee regarding the program's success.

2.0 ASSESSMENT -- A PROVINCIAL EVALUATIONS COMMITTEE

The current provincial Steering Committee on Fire Prevention and Protection in northern Alberta has provided the original framework for the Fire Prevention Program. To ensure that the program is fully developed and then implemented in a manner consistent with the original intent of the program, a provincial Evaluations Committee should be instituted. Such a Committee will ensure that the interests of those that will benefit from the program (i.e. stakeholders) are fairly represented. The Steering Committee currently in place would make both a readily available and an appropriate group for this task.

The Evaluations Committee should have representation from Alberta Government Departments of Education and Labour, and as well, representatives from the various municipal agencies and groups.

The following provides a list of the groups that should have representation on the Evaluations Committee:

. Associations:

- Alberta Fire Chiefs Association
- Alberta Urban Municipalities Association
- Alberta Association of Municipal Districts and Counties;

. Government Departments:

- Alberta Labour -- Fire Protection/Prevention
- Alberta Education -- Curriculum Develop nent
- Alberta Municipal Affairs -- I.D. Administration Branch and Metis Development Branch
- Alberta Social Services and Community Health
- Alberta Tourism and Small Business -- Northern Development Branch.

3.0 CO-ORDINATION AND DEVELOPMENT — REGIONAL FIRE LIAISON OFFICER (WITH ASSISTANCE FROM THE FIRE PREVENTION OFFICER)

The Regional Fire Liaison Officer is central to the administration of the program, and is responsible for the co-ordination of all its components within a given geographic region. As illustrated by the chart opposite Page 17, the Regional Fire Liaison Officer will report formally to the Fire Prevention Branch on a day-to-day basis and liaise with the Local Authorities on community interest matters. In addition, the Regional Fire Liaison Officer should establish an effective and close working relationship with the Fire Prevention Officer of the area. The Fire Prevention Officer and the Regional Fire Liaison Officer generally have the same long-term objectives and their separate and different roles should work together to achieve these objectives.A close working relationship is essential to the success of the program and will ensure that all fire prevention efforts are well co-ordinated and planned.

It is anticipated that the Regional Fire Liaison Officer will establish an office and working relationship with the Local Authority, however, alternate modes of implementation may be considered, as long as the Regional Fire Liaison Officer is physically located within the region and closely associated with the various communities within the region.

The Regional Fire Liaison Officer's main goal will be to create a multiplier effect by stimulating the base of volunteer help and by making the roles of related professionals (i.e. operators of the program) more effective through regional co-ordination and facilitation. Without this, costs could not be justified. In addition to increasing the value of the fire prevention effort through facilitating the efforts of others, the Regional Fire Liaison Officer will also be able to carry out day-to-day activities such as Home Inspections in support of the fire prevention effort.

A major task for the Regional Fire Liaison Officer will be the development of specific community-based programs, and specifically, a Home Inspections Program plus a Community Club Program.

The Home Inspection Program will be designed to ensure that all homes (residences) in the region, over a reasonable period of time, are inspected for fire safety and then followed-up with a return visit.

The Community Organization Program will ensure local visibility of fire prevention within the community by building from the strength of the various community clubs within the area. Specific activities of such a program will include visits, talks, and speeches to various community groups marketing fire prevention and items that can be performed by the community.

As discussed in a previous section, the key interfaces which the Regional Fire Liaison Officer will have to manage include:

- The community at large;
- Local fire personnel;
- Community leaders;
- Businesses with high public contact;
- Church;
- Alberta Fire Prevention Officers;
- Local school boards;
- Teachers and school administrators;
- Department of Education;
- Social Services and Community Health;
- R.C.M.P.

The Regional Fire Liaison Officer will not have formal authority over any of the groups which it will be working with. Co-operation of the professionals within the community will be dependent to a large degree upon the facilitation skills of the Regional Fire Liaison Officer.

4.0 DELIVERY -- TEACHERS, FIRE PREVENTION OFFICERS, FIRE PERSONNEL, VOLUNTEERS

The key operators of the program, in addition to the Regional Fire Liaison Officer (as discussed in section 3.0), will be Teachers and Fire Prevention Officers. The administrative structure of the Fire Prevention Model illustrates that the involvement of volunteer groups and fire personnel will, over time, see them becoming key operators of the program as well.

The responsibilities of these groups are discussed in the following paragraphs.

4.1 TEACHERS

The program envisions that teachers will provide instruction to school children using the Fire And Fire Safety program as a key resource. It is not feasible for the program to "require" a teacher to provide fire safety education, nor is it likely beneficial to do so. The focus of the program is to solicit their support and interest plus the general support and commitment of the various school boards/systems. Again, this will be a major task for the Regional Fire Liaison Officer. The teacher would also assist the effort by integrating future developments of fire safety education into the curriculum and for ensuring children receive proper instruction on fire safety within the home.

The teacher will receive direct support from the Regional Fire Liaison Officer in terms of receiving materials on fire prevention and life safety. In addition, the teacher's liaison with the other operators will be facilitated through the Regional Fire Liaison Officer.

4.2 FIRE PREVENTION OFFICERS

Currently, the Department of Labour employs Fire Prevention Officers in the north. They are, from all reports, valuably employed in performing activities such as:

- Conducting institutional and business inspections;
- Supporting development of fire codes and review of facility designs;
- General educational programs;
- Product education at point of sale.

Of these activities, the latter two will require co-ordination with the Regional Fire Liaison Officer.

It should not be construed by the reader that the Fire Prevention Officer is an additional cost, based on the introduction of the Fire Prevention Model. Rather, their cost is already accounted for in Departmental budgets, and no change per se is recommended.

4.3 FIRE PERSONNEL

Both the volunteer and the professional fire fighter will provide a valuable resource and source of information regarding the specific fire hazards found in a local community. With a regional professional to help organize and motivate local fire personnel in the area of prevention, it is expected that more prevention activities will be conducted by them over time.

A major task for local fire personnel could be to assist in the development of Home Inspection Training Programs for volunteer workers who are committed to conducting home inspections.

4.4 VOLUNTEERS

The volunteer will provide the extra manpower necessary for delivering the various elements of the program. A key area of activity will be conducting the home inspections, once the Home Inspection Program has been developed by the Regional Fire Liaison Officer. The base of volunteers will evolve out of community activity such as community associations and clubs.

The volunteer, as an operator of the program, will be highly dependent on community spirit and the Regional Fire Liaison Officer's efforts at instilling a sense of purpose regarding fire prevention. The volunteer's efforts are the backbone of the program and will be the focus of the Regional Fire Liaison Officer's efforts.

PROVINCIAL FUNDING SHOULD BE ASSUMED IN COST SHARING ARRANGEMENTS WITH THE LOCAL AUTHORITIES

Cost-share agreements have been pursued by various Local Authorities with the Provincial Government on many matters. These arrangements have proven successful in soliciting commitment and enabling a better understanding of the activities shared by the agreement.

The Committee believes administrative costs of the Fire Prevention Program should be shared by both regional and provincial levels of government. The Local Authorities could be the Improvement Districts (I.D.'s), Municipal Districts (M.D.'s), or Counties, while the provincial costs can be borne by either the Department of Labour, Fire Prevention Branch, or by the Department of Tourism and Small Business, Northern Development Branch. A standard agreement developed in a particular area could be enhanced over time and act as a standard upon which future agreements can be based.

It is anticipated that this cost sharing approach will enhance the program initiative and commitment within the regions and will result in a better understanding of the program at both levels.

IV

IMPLEMENTATION — CONSIDERATIONS AND PLAN

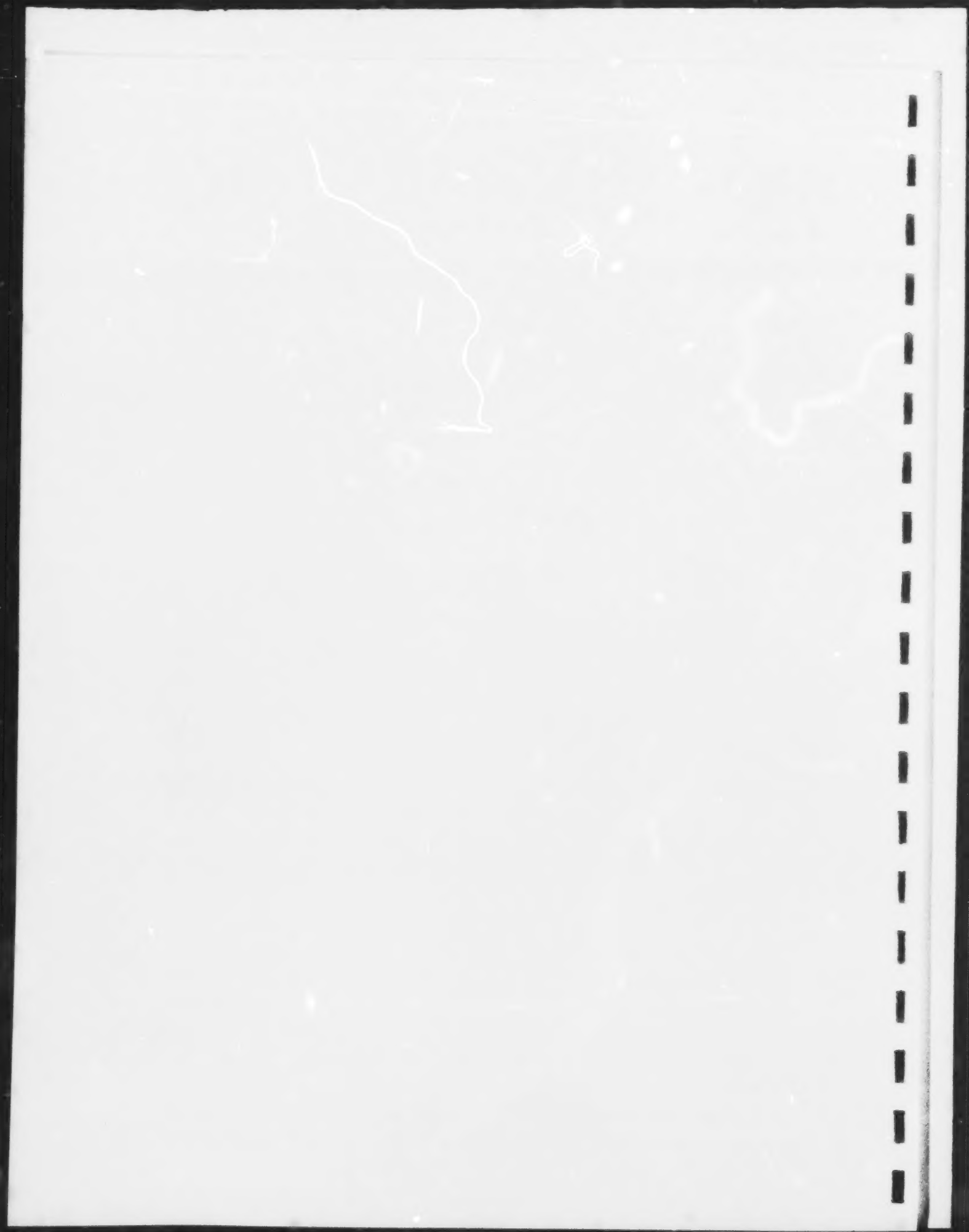
A FIRE PREVENTION MODEL FOR NORTHERN ALBERTA COULD INCUR SUBSTANTIAL COSTS BEFORE BENEFITS ARE DEMONSTRATED

Implementation of the proposed Fire Prevention Model for northern Alberta is likely to incur costs in several categories (based on eight (8) Regional Fire Liaison Officer in total):

. Salaries and Benefits for the Regional Fire Liaison Officers	$ 240,000
. Travel and Accommodation Costs	80,000
. Material Production Costs	80,000
. Office Support	80,000
Total	$ 480,000

Therefore, total costs would be $480,000 per year, without considering costs of a special program such as smoke detector or home fire extinguisher installation, which would cost, on a totally funded basis, $50 to $75 per household, or funding costs for developing Fire and Fire Safety, at $20,000 per grade.

The benefits from the Model will take time to be realized. A following section on assessment and evaluation indicates that a five to ten year period is required to fully evaluate the success of an effort such as this. However, more immediate recognition of benefits is possible through careful definition of minimum expectations from the program (e.g. community support; introduction to and support of a school district and in teachers; parental feedback). This allows the concept to be introduced, using a phased approach once short-term benefits are realized, minimizing



risks while gaining some benefits. The focus of a short-term review during the first part of a phased approach will be on the success or failure of measures taken to implement and administer the program versus overall program impact.

We suggest that the extreme nature of the fire problem in the north demands an early implementation, and that evaluation of the effort's success be used to tailor the Model for maximum benefits.

BASED ON SEVERITY OF THE PROBLEM, THE PHASED IMPLEMENTATION IS SUGGESTED TO BEGIN IN THE RURAL AND ISOLATED REGION OF THE NORTH, FOCUSING ON 15 COMMUNITIES WITHIN I.D. #17 AS OUTLINED IN THE EXECUTIVE SUMMARY (PAGE VIII)

Earlier in the report we demonstrated that the most serious problem in regard to impacts (deaths, injuries) in Alberta from fire was northern rural Alberta. Therefore, we suggest this be the first phase introduced to the Fire Prevention Model.

In considering the various sectors of the north, I.D. #17 appears as having several characteristics that make it a desireable candidate for Phase I:

- It has a large and diverse rural population;
- It is largely served by one school division (Northlands) (although it has four (4) different Advisory Councils; is almost totally Northlands while the other three (3) are various school divisions);
- Statistics exist for most of the area so changes can be noted;
- It does not appear to have a highly transient population, nor does it appear to be the subject of major growth efforts in the next period of time.

Therefore, it is suggested to begin Phase I in I.D. #17. Upon a successful four or five year run, the Model should be extended to the rest of the north. This decision and execution should be carried out by the established Evaluations Committee.

AN OUTLINE OF PHASE I WILL SEE A LIMITED SET OF ELEMENTS IMPLEMENTED, COUPLED WITH A BASIC ADMINISTRATIVE STRUCTURE

The fundamental principles to be emphasized in Phase I will be:

- Appointment of a Regional Fire Liaison Officer reporting directly to the Alberta Fire Prevention Branch and living in the local communities with 100% funding basis by the Provincial Government;

- Discussions with Northlands School Division to ensure their support in introducing Fire And Fire Safety (K-3) into the schools;

- Establishment of a program of Community Organization contacts with particular emphasis on Fire Safety Weeks;

- Establishment of a Home Inspection Program, staffed by volunteers, to:

    - Check for fire hazards
    - Develop escape routes
    - Check understanding re: fuel usage/smoking

- Additionally, to examine the feasibility of introducing smoke detectors and fire extinguishers into each household, beginning with the most isolated communities, perhaps through the Rural Housing Assistance Program.

The smaller settlements will be worked with on a priority basis.

IMPLEMENTATION SCHEDULE

Item Sequencing	Time
. Steering Committee Recommendations	June to September 1983
. Steering Committee Recommendations to Alberta Fire Chiefs Association	June to September 1983
. NADC Review and Recommendations	June to September 1983
. Approval of Phase I Funding	September to December 1983
PHASE I	
. Community -- Area Review and Commitment	January to March 1984
. Regional Fire Liaison Officer Staffing Decision	March 1984
. School Division Contact and Approval	January to March 1984
. Specific Program Design and Development (Includes detailed examination of Phase I statistics for large problem/ benefit areas)	March to June 1984
. Community Club Contact	June 1984
. Volunteers Identified	July 1984
. Community Education - Home Inspection - Community Clubs	August 1984
. Teacher Education Re: Fire and Fire Safety	September to December 1984
. Full Phase I Program Implemented	March 1985
. Phase I Results, Annual Assessment and Evaluation	December 1985-89
. Status Review (ongoing) with Evaluations Committee	December 1984-89
PHASE II	
. Program Planning	January and February 1988
. Evaluations Committee Decision On Next Phases	January 1989

PHASE I COSTS ARE ESTIMATED AT $80,000 PER YEAR -- FOR SIGNIFICANT BENEFIT

The costs of Phase I are estimated as:

. Regional Fire Liaison Officer	$ 30,000
. Travel and Accommodation	10,000
. Material Production	10,000
. Office Support	10,000
. Fire And Fire Safety Material Development Support	20,000
	$ 80,000

This includes some support ($20,000) to the City of Edmonton to continue development of the Fire And Fire Safety materials to Grades 4 and 5.

The benefits suggested from this effort will be a move from the very poor existing position to an average at least approaching that found in the overall north. That is, for example, the death rate could move to half its current rate, implying several lives saved per year within the Phase I area.

AN IMPLEMENTATION SCHEDULE IS PRESENTED IN THE FORM OF KEY STEPS

The facing chart outlines the major steps towards implementation, and their interrelationship. They are for the most part straightforward and standard. However, the assessment and evaluation steps require further explanation, as discussed in the following paragraphs.

IMPLEMENTATION OF PHASE I

The implementation of Phase I requires Steering Committee, NADC, and Provincial approvals. Once this is received, a Regional Fire Liaison Officer may be selected and the affected "operators" (e.g. School Board, Teachers, etc.) may be contacted by the Regional Fire Liaison Officer. The Regional Fire Liaison Officer will establish a working team to implement the specific elements as they are designed.

The program itself will be developed through the joint efforts of the Regional Fire Liaison Officer and the Fire Prevention Branch, with the latter taking the lead per the Administrative Model.

THE FIRE PREVENTION MODEL IS DESIGNED FOR LONG-TERM IMPACTS -- EVALUATION MUST REFLECT THIS PERIOD

The nature of the fire problem in northern Alberta requires a Fire Prevention Model which deals with public attitudes and behavior. Like other activities which deal with public education and behavior, solutions to the problem often require long-term periods of commitment for significant impacts to be gained. Consequently, the Fire Prevention Program should be evaluated on a long-term basis, with an indepth evaluation of the Model being conducted after a period of five years of operation.

STANDARD EVALUATION METHODOLOGY SUGGESTS THAT LONG-TERM EVALUATIONS SHOULD BE PREPARED FOR BY CONDUCTING A PRELIMINARY EVALUATION, AND YEARLY MONITORING

The five year evaluation would follow standard evaluation methodology, providing a comprehensive assessment of the Model in terms of how well it has met its overall goals and objectives.

To prepare for this evaluation, a preliminary evaluation should be conducted after one year, along with yearly monitoring. The preliminary evaluation will ensure that the necessary data base is in place to allow for an effective overall evaluation after the five year period. During the preliminary evaluation, an assessment will be made of operational and procedural components of the Model to ensure that they reflect the original intent and guidelines of the Model. This review will determine if any fine-tuning is required in the Model procedures. Data must be gathered to successfully do the evaluation, including statistics such as death rate; educational rate; smoke detector installation; home inspections; etc.

STANDARDS FOR EVALUATION SHOULD FLOW FROM GOALS OF REDUCED INCIDENCE AND IMPACTS

The main goals of the Model are to reduce both the incidence and impact of fires. The study focused on the following as measures of incidence and impact:

- Number of fires -- incidence;
- Dollar losses;
- Number of deaths;
- Number of injuries -- impact.

These measures can provide a benchmark of the current size and nature of the fire problem and should be used to develop standards for assessing the Model's success.

SHORT-TERM STANDARDS OF EVALUATION WILL ALSO FOCUS ON OPERATIONAL AND ADMINISTRATIVE OBJECTIVES OF THE PROGRAM

Although measures of incidence and impact have long-term requirements, there are other standards upon which the Model can be assessed in shorter periods of time. These standards can be based upon the following objectives:

- That the Model be delivered in a consistent manner from region to region to ensure continuity and a common basis for evaluation;
- That the Model ensure a high degree of community spirit and participation;
- That the Model ensure extensive coverage throughout the whole community within each region;
- That technological developments be integrated into the Model as they occur;
- That the Model provide fire prevention in the most cost-effective manner available.

In reviewing the objectives, there appears to be four items that should be evaluated. Of these objectives, all can provide standards measurable on a short-term basis, such as one or five years. These are as follows:

- Continuity and Commitment;
- Community Coverage;
- Technology;
- Cost.

These standards tend to represent operational and administrative concerns which can provide a sense for the general direction and success of the Model on a short-term basis. The vast majority of these items for evaluation also require data to be collected on an annual basis. As such, a large part of the Model's results can be reviewed frequently. Appendix F further describes these standards. It is intended that the evaluations would be carried out by Departmental staff, on behalf of the Evaluations Committee.

PHASE II WILL DEPEND UPON A SUPPORTIVE EVALUATION OF PHASE I

The Evaluations Committee will review the results of Phase I annually to determine the need for Model modification, and to consider extension to Phase II, involving the rest of the north. The key tests to be made of Phase I will be:

- Rate of death, injury and dollar loss (trend if not absolute number);
- Rate of home inspection and smoke detector/fire extinguisher installation (including costs);
- Number of students involved with Fire And Fire Safety, coupled with teachers' review of adequacy;
- General community awareness and support.

Given positive scores on these and traditional budgetary tests, the Committee will make its decision, enabling Phase II to be fully implemented within a following four to five year period.

This concludes the section on Implementation Considerations, and the report on a Fire Prevention Model for northern Alberta. (A separately bound appendix document is also provided as back-up and support to this report and the comments contained herein.)

In the report, we have established that there is a substantial need for the enhanced delivery of fire prevention in northern Alberta and have put forward a Model which can effectively meet the special needs of the northern situation in a timely, and cost-effective manner.

The Model can be viewed as a community and public education effort supported by a professional facilitator in the form of a Regional Fire Liaison Officer. The Model solicits the support of the provincial, regional and local professionals/support groups and suggests that technological aids be integrated where possible. The administration of the Model is designed to be cost-effective by better utilizing the skills and capacities of existing professionals plus those of volunteers.

The implementation of the Model and its programs is recommended to be on a phased approach. Such an approach will provide the largest returns possible by focusing on areas which have the greatest need.

In closing, we believe that the recommended Model is highly desirable and can provide numerous benefits of reduced death, injury, and dollar loss in northern Alberta.

Number/
Numéro

2

ADDENDUM DOCUMENT

FIRE PREVENTION MODEL FOR NORTHERN ALBERTA

Prepared For:

ALBERTA PROVINCIAL FIRE CHIEFS ASSOCIATION
AND THE
GOVERNMENT OF ALBERTA, REPRESENTED BY
ALBERTA TOURISM AND SMALL BUSINESS
AND THE
NORTHERN ALBERTA DEVELOPMENT COUNCIL

JUNE 1983

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AND THE
NORTHERN ALBERTA DEVELOPMENT COUNCIL
AND HAS BEEN COST-SHARED
UNDER THE AUSPICES OF THE
CANADA/ALBERTA SUBSIDIARY AGREEMENT ON ALBERTA NORTH

JUNE 1983

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- Number of Fires Per 1,000 People	2a
- Dollar Loss Per 1,000 People	2b
- Number of Deaths Per 1,000 People	2c
- Number of Injuries Per 1,000 People	2d
Overall Cause Of Fire:	
- Number of Fires Per 1,000 People	2e
- Dollar Loss Per 1,000 People	2f
- Number of Deaths Per 1,000 People	2g
- Number of Injuries Per 1,000 People	2h
Residential -- Source Of Heat:	
- Number of Fires Per 1,000 People	2i
- Dollar Loss Per 1,000 People	2j
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Residential -- Fuel And Energy Type:	
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- Dollar Loss Per 1,000 People	2o
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APPENDIX A

STATISTICAL SUMMARY

The following appendix provides a summary of statistics reviewed by the committee in forming our conclusions and recommendations. The statistics provide a north versus south comparison for the following:

- Fire statistics (number of fires, deaths, dollar loss, injuries) by property classification (shows that 90% of "deaths" and highest category of "dollar loss" is within residential fires);

- Fire statistics by "residential" category (number of fires, death, dollar loss, injuries):

  - Overall cause of fire (act or omission) -- shows human/mechanical failing as leading causes

  - Source of heat -- smokers and heating material are key sources

  - Fuel and energy type -- coal, propane, and fuel oil lead

  - Area of origin -- non-conclusive

  - Material first ignited -- non-conclusive.

APPENDIX B

CURRENT SITUATION SUMMARY

The following appendix provides a summary of the Committee's review of the current Fire Prevention and Protection situation within Alberta. The review focuses on current levels of equipment and facilities, mutual aid agreements, and current public education programs.

CURRENT SITUATION SUMMARY

Current Fire Protection Equipment And Facilities

As discussed, two integral goals of a fire model are both fire prevention and fire protection. The fire prevention model presented in this report suggests that a focus towards prevention is highly desirable for several compelling reasons. One of these reasons is that current levels of protection are viewed as being relatively adequate. A review of the current level of fire fighting capacity supports this conclusion with the following observations:

- The average dollar value of fire fighting equipment and capital facilities, is approximately $102 per person for the northern part of Alberta versus $30 per person in a sample area of rural southern Alberta. (See table I on the facing page.)

- An orientation of fire services in recent years has been to enhance the dollar value and quality of the fire fighting equipment and facilities in northern Alberta;

- The fire fighting component of northern Alberta receives training and development support from the Regional Fire College and from the Fire Commissioner's Office;

- The volunteer fire fighting forces throughout the north have historically had an orientation towards fire fighting versus fire prevention. Fire prevention activities are viewed as too time consuming for volunteer forces and are generally limited to blitz campaigns during fire prevention week.

A review of the current situation has also indicated that the fire fighting capability of the north is enhanced through limited, but a growing number of mutual aid agreements between various neighbouring jurisdictions. These agreements will be discussed further in a following section of this appendix.

Analysis Of Current Fire Protection Facilities

The following pages of this section of Appendix B present a detailed look at the current level of fire protection in the various areas of northern Alberta. For each district in the northern area, an estimate has been developed of the current dollar value of both equipment and physical facilities. These estimates have been based upon standard values for number of vehicles and size of fire stations (i.e. number of bays).

The total dollar value for the entire northern area has been estimated at approximately $22 million for a total population of 218,000. This translates into approximately $102 for every person in the north. This figure has been compared to a sample of rural and isolated areas in the south, which shows that the area receives only $30 per person in fire protection. A comparison of these two ratios suggests that the current level of fire protection in the north is relatively adequate, vis a vis the current situation within the south.

Overview Of Protection Services In Northern Alberta ($000's)

I.D. #15

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Blue Ridge	2	2	300	-
Fort Assiniboine	2	1	250	Yes
Whitecourt	6	5	900	In Progress

Total Dollar Value	$1,450
Total Population	8,269
Dollar Value/Population	$175

I.D. #16

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Valleyview	2	2	300	Yes
Fox Creek	1	2	230	Yes
Debolt	2	2	300	Yes
Grande Cache	3	4	625	Yes
Grovedale	1	1	180	-

Total Dollar Value	$1,635
Total Population	14,013
Dollar Value/Population	$116

I.D. #17

Location	Type Vehicles	Type Bays	Dollar Value	Mutual Aid Agreements
Peace River	4	4	700	Yes
Nampa	2	2	300	Yes
High Prairie	1	3	480	Yes
Faust	1	1	180	-
Joussard	1	1	180	-
Grouard	2	2	300	-
Kinuso	-	-	-	Yes
Swan Hills	3	2	375	-
Slave Lake	2	2	300	Yes
Wabasca-Desmarais	3	3	625	-
Widewater/Wagner	1	1	180	-
Smith	2	2	300	-
Flatbush	1	2	230	-
Chipewyan Lakes	1	-	80	-
Calling Lake	1	2	230	-
Sandy Lake	1	1	110	-
Mitsue	1	-	10	-

Total Dollar Value	$4,580
Total Population	27,592
Dollar Value/Population	$165

I.D. #18

Location	Type Vehicles	Type Bays	Dollar Value	Mutual Aid Agreements
Lac La Biche	2	2	300	Yes
Plamondon	2	2	300	Yes
Wandering River	1	2	230	-
Hylo	1	2	230	-
Fort McMurray	7	7	950	Yes
Anzac	1	1	180	-
Fort Chipewyan	1	1	180	-
Conklin	-	-	-	-

Total Dollar Value	$2,370
Total Population	45,521
Dollar Value/Population	$52

I.D. #19

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Wanham	1	1	180	-
Eaglesham	1	1	180	-

Total Dollar Value	$360
Total Population	2,230
Dollar Value/Population	$161

I.D. #20

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Spirit River	1	2	230	-

Total Dollar Value	$230
Total Population	3,000
Dollar Value/Population	$76

I.D. #21

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Hines Creek	2	2	300	Yes
Worsley	1	1	180	-

Total Dollar Value	$480
Total Population	3,511
Dollar Value/Population	$136

I.D. #22

Location	Type Vehicles	Type Bays	Dollar Value	Mutual Aid Agreements
Manning	1	2	230	Yes

Total Dollar Value	$230
Total Population	5,512
Dollar Value/Population	$41

I.D. #23

Location	Type Vehicles	Type Bays	Dollar Value	Mutual Aid Agreements
High Level	2	2	300	Yes
Fort Vermilion	2	2	300	-
Rainbow Lake	1	2	230	-
La Crete	2	2	300	-

Total Dollar Value	$1,130
Total Population	8,930
Dollar Value/Population	$126

COUNTY: GRANDE PRAIRIE #1

Location	Type Vehicles	Type Bays	Dollar Value	Mutual Aid Agreements
Sexsmith	2	1	250	Yes
Wembley	2	4	550	Yes
Beaverlodge	2	4	550	Yes
Hythe	2	3	550	Yes
La Glace	1	1	180	-
Teepee Creek	1	-	80	-
Grande Prairie	6	8	950	Yes

Total Dollar Value	$3,110
Total Population	41,352
Dollar Value/Population	$75

COUNTY: ATHABASCA #12

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Athabasca	2	2	300	Yes
Boyle	1	1	180	Yes
Grassland	2	2	300	-
Colinton	2	2	300	-
Rochester	1	1	180	-

Total Dollar Value	$1,260
Total Population	7,799
Dollar Value/Population	$162

COUNTY: ST. PAUL #19

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
St. Paul	3	1	325	Yes
Elk Point	2	2	300	Yes
Mallaig	1	1	180	-
Ashmont	1	1	180	-

Total Dollar Value	$985
Total Population	12,036
Dollar Value/Population	$81

M.D.: BONNYVILE #87

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Bonnyville	2	2	300	Yes
Cold Lake	2	2	300	-
Grand Centre	2	1	250	Yes
Glendon	2	3	550	Yes
Fort Kent	1	1	180	-
Ardmore	1	1	180	-
La Corey	1	1	180	-

Total Dollar Value	$1,760
Total Population	19,144
Dollar Value/Population	$91

M.D.: SMOKY RIVER #130

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Falher	2	3	550	Yes
McLennan	1	-	10	-

Total Dollar Value	$560
Total Population	5,563
Dollar Value/Population	$100

M.D.: SPIRIT RIVER #133

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Spirit River	1	1	180	Yes
Rycroft	-	1	100	In Progress

Total Dollar Value	$280
Total Population	4,611
Dollar Value/Population	$60

M.D.: PEACE RIVER #135

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Brownvale	1	2	230	-
Berwyn	2	3	550	Yes
Grimshaw	1	3	480	-

Total Dollar Value	$1,260
Total Population	4,640
Dollar Value/Population	$271

M.D.: FAIRVIEW #136

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Fairview	3	2	375	Yes
Whitelaw	-	-	-	-

Total Dollar Value	$375
Total Population	4,758
Dollar Value/Population	$78

METIS SETTLEMENTS

Location	Type		Dollar Value	Mutual Aid Agreements
	Vehicles	Bays		
Paddle Prairie	1	1	180	-
Kikino	1	-	80	

Total Dollar Value	$260
Total Population	1,153
Dollar Value/Population	$226

Summary

Total Dollar Value For North	$22,495
Total Population	218,699
Dollar Value/Population	$102

Current Mutual Aid Agreements

As part of a review of the current fire fighting facilities, the previous section of this appendix provided a listing of the various mutual aid agreements in place in northern Alberta. There are a significant and growing number of mutual aid agreements. However, there is a need to provide an impetus in areas where mutual aid agreements will/may not be developed through local initiatives. Of particular note is the need for continual and focused attention for mutual aid agreements with various Indian Reserves and Native lands. For example, the Department of Indian Affairs estimates that of the reserves in Alberta which could benefit from mutual aid agreements, approximately 40% do not have, nor will they (under current conditions) likely have a mutual aid agreement in place. Currently, the interaction between the province and the federal departments on mutual aid is a one-way process with the federal government providing the initial contact and consistent focus.

In a similar manner, there does not appear to be a consistent focus for the development of mutual aid agreements between neighbouring municipalities and districts. There are current standard contracts/agreements in place. However, there appears to be a clear focus of authority on common issues such as:

- Reasonable area of coverage (e.g. 10 miles versus 25 mile radius of coverage);
- Agreements for solving liability issues;
- Co-operative planning of equipment purchases;

Another more global gap in the development of mutual aid agreements is a focus for providing communication, commitment/motivation and trust between neighbouring communities on fire protection equipment when local initiatives have failed to achieve these necessary components of a mutual aid agreement/contract.

Current Public Education Programs

The Steering Committee's review of current public education programs found that there were only two programs that could be considered serious programs to be incorporated into a school curriculum over several grades. These two programs are "Learn Not To Burn", and "Fire and Fire Safety". Both of these programs offer curriculum that introduces fire safety "behavior" at the elementary school level and over a series of grades. "Learn Not To Burn" has been developed by the National Fire Protection Association of the United States, while "Fire and Fire Safety" has been developed by the City of Edmonton and fashioned to a large degree from the "Learn Not To Burn" program.

Although both programs have significant credibility, there are conflicting views as to which is the most effective. The main difference, in our view, is that the Learn Not To Burn Program is more comprehensive than Fire and Fire Safety, while Fire and Fire Safety is perhaps easier to implement.

In comparing the two programs, supporters of the Fire and Fire Safety Program would state the following factors as rather important restrictions to the Learn Not To Burn Program:

- It requires a fair degree of "in service training" where the instructor attends an instructional course on the program. This is perceived as very time consuming and costly. Teacher turnaround and travel distance are compounding implications to these costs and this is especially true in a rural/isolated environment;

- It requires that teachers provide many of their own teaching aids and background preparation;

- It generally is more difficult to instruct and does not ensure a good degree of consistency in its delivery;

- As an American publication, there are perceived difficulties with the relevance of the material and access of teaching aids.

Supporters of the Learn Not To Burn Program state that the provision of teaching aids, background material and training to support the program are not a significant concern and that the provision of a "Resource Centre" would eliminate this concern completely. The Resource Centre could provide a provincial inventory of films, slides, background materials and other items to support teachers of the program.

These two programs have been discussed amongst the members of the Steering Committee and it is a decision of the Steering Committee to pursue Fire and Fire Safety as a public school program, suitable for Alberta schools and specifically for northern communities. The Fire and Fire Safety Program is discussed in more detail in the following paragraphs.

Fire And Fire Safety

Fire and Fire Safety started off as a grade one level education program developed by the City of Edmonton. The principle supporter/funder of the program's development was the City of Edmonton's Fire Department. The program was professionally developed; written by professional curriculum writers; evaluated by curriculum consultants; piloted by 25 to 30 teachers in the Edmonton area; and revamped to reflect their suggestions. The grade one version of Fire and Fire Safety has been successfully used and supported. Other versions to suit Grades 2, 3, and 4 have been developed and other grades are also currently being developed. There are plans for the program to follow on through to secondary school and some Technical/Trade schools, where the incidence in tradesmen related fires is well known (e.g. welders/blow torch fires).

The obectives for the Grade 3 version are as follows:

- Students will demonstrate an understanding of combustion by being able to identify the three elements of the "fire triangle";
- The students will demonstrate positive behavioral responses to fire emergencies;
- The students will demonstrate an understanding of the prevention and treatment of burns and scalds.

For each of these main "teaching" objectives, there are also a series of well defined "delivery" oriented sub-objectives. Apparently the program is patterned after the Learn Not To Burn Program, and contains several of its principles, such as:

- Integration of subject matter into other curriculum areas;
- Repetitive over time, building from one grade to another;
- Focused towards elementary grades.

An independent and professional evaluator of school programs had the following comments of the Fire and Fire Safety Program:

- "Superb quality of instruction;
- Good integration with other subjects;
- Very simple and complete;
- Not as comprehensive as the Learn Not To Burn, but introduction of the other grade levels will offset that;
- Superb material, likely the best available".

The program has a substantial amount of credibility. Firstly, the program has been given strong support from both teachers and outside groups, such as the Edmonton Fire Department and Insurance Companies. Secondly, it has apparently been reviewed and used by other jurisdictions such as Toronto.

The long-term plan of the program is to complete development of the grades 1 - 6 materials (currently grades 1 to 3 are formally completed, with most of the work completed on grade 4) and then develop integrative materials for junior and senior high schools. The focus of non-elementary materials will be Industrial Arts and Business courses.

APPENDIX C

COMPARATIVE SITUATIONS

The following appendix provides an overview of programs/activities related to Fire Prevention and Protection within several other provinces. The programs reviewed were those of British Columbia, Saskatchewan, Manitoba and Ontario, with special emphasis placed upon the northern fire preventions programs of Manitoba and Ontario.

COMPARATIVE SITUATIONS

The Committee's review found that fire prevention and protection is generally a Provincial responsibility (as opposed to Federal) except for areas related to transportation and explosives which are Federal. In all the Provinces reviewed, the task of developing, delivering and operating Prevention and Protection programs is left in the hands of the Municipalities and the local Fire Departments and/or volunteers. This has generally resulted in a wide variation in the quality and quantity of programs developed and delivered.

The role of the Fire Commissioner within each Province is generally to promote and provide direction to programs that exist within the Municipalities or Districts. The role of providing Prevention programs to be used by the local Districts is increasing in favour, and growth of support to the districts is only limited by the fact that there is not enough manpower dedicated to the task of Fire Prevention. Within each province, the traditional and main task of the Fire Commissioner's staff has been to provide advice to the local Districts on levels of Fire Protection and on use of equipment. Fire Prevention activity is generally only done when the traditional task is complete. However, manpower restrictions make it difficult for the Fire Commissioner's staff to spend as much time on Fire Prevention as desired.

The following sections outline programs that are specific to Northern communities and programs that are designed to meet general provincial needs. This appendix is concluded with a summary chart on programs in other jurisdictions.

Programs For The Northern Communities

Of the provinces reviewed, only Manitoba and Ontario have programs which are aimed specifically towards the needs of northern communities.

In our review of the two programs for both Manitoba and Ontario, it appears that the characteristics of the Manitoba program are more in line with the current thinking/approach within Alberta. That is, while the Manitoba program is providing for continued development of fire protection equipment, it remains a very "preventive" oriented program. In comparison, the Ontario program is oriented almost exclusively towards providing fire fighting equipment and organization of manpower within unorganized districts of northern Ontario. It also appears that the Manitoba program has been more successful. Rather than concentrating on the level of fire equipment within a fire station, the program has focused on raising the "level of consciousness" towards the fire problem and towards fire safety amongst the people of northern Manitoba.

It became increasingly apparent throughout the review of other jurisdictions that there is likely not a great deal of innovative thought and practice towards Fire Prevention and Protection programs amongst local jurisdictions, outside of the Fire Commissioner's Office. This could indicate that Manitoba and Ontario's northern programs are not successful in stimulating independent development of programs by the local jurisdictions over time.

The following sections provide more specific details regarding the Manitoba/Ontario programs.

Characteristics Of The Manitoba Program

The Manitoba Northern Fire Protection Program was established in 1979 with the formation of a Steering Committee, representing the Department of Northern Affairs, the Fire Commissioner's Office, the Department of Labour and the Forest Protection Branch of the Department of Mines, Natural Resources and Environment. The overall purpose was to:

- "Accelerate and improve fire protection in the north."

The northern program consists of the following components:

- The Department of Northern Affairs purchases and distributes fire equipment (upon the approval of the Fire Commissioner) to northern communities as part of a Northlands agreement (which was only established for a fixed period of time);
- Development of regional assistance plans and structural aids;
- The general establishment of local fire departments through the efforts of Northern Affairs and personnel;
- The appointment of a Co-ordinator to help communicate the program to local areas and to maintain ongoing relations;
- The provision of special training and equipment for fire personnel from the north by the Fire Commissioner's Office;
- The monitoring and evaluation of the program by the Department of Northern Affairs;
- Distribution of an official program booklet to northern communities to outline the program and to assist the local fire personnel to establish their fire stations.

Manitoba's Northern Program has a strong public education focus that is directly supported (materials, training) by the Manitoba Fire College. This support is ensured in that the Manager of the northern program is also the Principal of the Manitoba Fire College. The Fire College has a strong public education focus throughout the province and appears truly committed to providing useful outlines and guides for local fire departments to conduct public education in the various regions. In conducting a review of the northern program, the following points tend to describe its main characteristics:

- It attempts to assure independence and self determination of Fire Prevention/Protection services for the local jurisdictions. This is in response to the Department of Northern Affairs commitment to ensure that local communities become self governing;

- The program provides a high level of support to local fire stations/departments in terms of both Protection and Prevention procedures;

- The program provides a specific focus on Prevention rather than Protection, yet it maintains a mix of the two elements in developing the level of overall fire service for the north.

A Review Of The Ontario Northern Program

Northern Ontario's program for Fire Prevention and Protection is managed by one of the provincial Deputy Fire Marshalls. The program was established as a well-defined, distinct program to assist all unorganized municipalities in the northern region. The program is jointly executed between the Fire Marshall's Office and the Department of Northern Affairs. Although some specific Fire Prevention activities can be identified as part of this program, the program appears to be mainly one of providing Fire Protection equipment to local jurisdictions. Several of the prevention activities within the overall northern program are as follows:

- Smoke Detector Program -- smoke detectors were distributed by the Department of Northern Affairs at local liquor stores. The program was felt to be very unsuccessful, mainly because it failed to provide the important element of education. If the Fire Marshall's Department were to redo this program, they would ensure that firstly the detectors would be distributed as a reward for positive fire safety action, and secondly it would be distributed with proper educational support as to its use, purpose and maintenance;

- Inspections -- inspections are delivered by the Fire Marshall's staff and by local Fire Chiefs. This program is a preferred method of activity for the Fire Marshall's Office in Ontario. Although this is a very time consuming activity, it was felt by the Ontario representatives that by going to the homes, fire education is made more effective;

- Slide Presentations -- slide presentations, similar to home inspections, are very time consuming. The Ontario officials do not believe their current slide presentation program is very effective.

Outside of these activities, there are few Fire Prevention activities/programs developed or executed through the northern program.

The current main focus of the northern program is completing a major equipment acquisition program for unorganized communities that have been identified by the Department of Northern Affairs as needing their own equipment. This capital acquisition component of the program is characterized by the following points:

- Before any equipment or manpower is deployed to a community, a single responsible individual has to be identified;

- Equipment is purchased by the province and provided to the community free of charge;

- Local volunteer fire personnel are trained directly by the province and are offered continuing support;

- The province also provides them with as many benefits as possible, such as health insurance and part-time payment;

- A Community Board is established through the work of the Department of Northern Affairs. The Board is given responsibility to oversee the local Fire Chief and his staff, but the Board has no real authority. As the owner of the fire fighting equipment, the Province of Ontario exercises direct authority over the Fire Chief and his station.

A special characteristic of the northern Ontario program is that the Fire Marshall has responsibility to carry out the implementation of the Fire Protection program, but the Department of Northern Affairs has the monetary resources and budget power. This is viewed by the Fire Marshall's personnel as a significant barrier for effective co-ordination of Fire Prevention/Protection services.

Another characteristic of this program is that over time it has lost its original intent of having a Fire Prevention focus. At this time, the Fire Marshall's staff are totally consumed by just keeping up with the level of fire equipment acquisition. This has placed a significant training workload upon the Fire Marshall's staff, leaving them with little, if any, resources to develop or carry out Fire Prevention activities.

General Programs

Most programs offered by the Fire Commissioner's office of the Provinces reviewed do not have an orientation towards rural or Northern communities. General programs of assistance are as follows:

School Programs

Generally, school programs have just recently been developed and implemented into the school systems on a formal basis. There are a variety of programs that have been established to fit a school curriculum but there does not appear to be a consensus as to which is better. In Ontario there are education programs in the schools, however, they are approved on a local Municipal basis without the formal backing of the Department of Education.

Public Education Programs

Amongst the Provinces, there is a dichotomy between those that use professional people to train and educate the public, and those that emphasize volunteer help to do so. It appears that the Province of Manitoba has had significant success with a volunteer training and education program. This can be a very cost-effective approach by having only a small handful of professional people that are able to recruit and train volunteers who can go out into the community.

Training Of Fire Personnel

Only three Provinces (B.C., Alberta and Ontario) have a centralized training facility for fire personnel. It is felt that free training for smaller communities is very successful and it helps them with the financial problem of training their own personnel. However, it is still difficult to recruit volunteer staff for the training programs because they tend to incur lost wages and there isn't a program available to subsidize a volunteer for this expense.

In some cases, training of fire personnel is regionalized by having regional offices of the Fire Commissioner throughout the Province. This appears to be effective in reaching small communities and increases the attendance and productivity at the training sessions.

Some Provinces have specialized forces for the training function, while others have individuals who carry out a variety of duties in conjunction with the training role.

Inspection Programs

Inspection programs tend to be divided between those that concentrate on residential dwellings and those that are concentrated on public buildings. Manitoba has placed an emphasis on inspecting residential dwellings. Since the majority of fire loss occurs in residential dwellings, it seems appropriate that the emphasis should be in that area.

Inspections can be carried out with either voluntary help or with professionals, however, with respect to residential dwellings, volunteer inspectors tend to have a better success rate in getting access to the homes.

Inspections in all Provinces reviewed are carried out by the local jurisdiction with the exception of Saskatchewan. Saskatchewan has a professional team of Inspectors who travel the Province's nine jurisdictions inspecting public dwellings and spending 80% of their time on preventive issues.

Maintenance Of Building Code

Through the approval of building plans and of the investigation of fires, the Building Code provides the fire system with an enforcement ability. Programs in this area do not normally stress education, except perhaps the dissemination of knowledge, obtained through investigations, to other fire personnel and to management.

Liaison with professionals affected by the Building Code could be an official program and would be in line with recommendations made by recent reports in the area.

Advertising And Media

Advertising is usually done in conjunction with national programs such as "The Old Mother Series". On local levels, public message broadcasts are encouraged through global media of all types and tend to be focused on the National Fire Prevention Week program.

Dissemination of public information from the Fire Commissioner's office is another key activity. Most have a bulletin or standard letter which goes out periodically to the local representatives throughout the Province. The distribution from the local representative depends solely upon the level of interest and motivation within the local jurisdiction.

Advertising and media response is seen as a public relations effort in small communities and generally enjoys a large degree of success in terms of making people aware of the fire problem and fire safety. A limitation to this program tends to be the limited amount of detailed fire safety information that can be transmitted over a short period of time in the media.

Equipment Acquisition Programs

Several Provinces have established a program whereby Northern communities and some rural communities can acquire Fire Protection equipment that is subsidized by a representative Provincial department. Ontario is just completing a major equipment acquisition program for its Northern communities. Such acquisitions are always accompanied by training and education in the use of this equipment. However, sometimes when the equipment is free or inexpensive, the Fire Commissioner's staff cannot keep up with the demand for training, thereby often rendering the new machinery ineffective.

Support To Volunteers

With communities under 5,000 in population, the use of volunteers makes sound economic sense. However, the support of the volunteer through specific programs appears to be non-existent throughout all the Provinces reviewed.

Research And Analysis Of The Fire Problem

There are apparently no programs within the Provinces reviewed that focus activities and staff towards the area of research and analysis. Alberta probably has the most comprehensive set of data, with some Provinces like Saskatchewan not having the resources to produce even an annual report.

Mutual Aid Programs

None of the Provinces reviewed have programs which would support mutual aid and regionalization of local fire jurisdictions. While this may in fact occur on an ad hoc and isolated basis, there is no promotion from the Provincial level.

Home Protection Programs

The only programs related to home protection equipment such as smoke detectors and fire extinguishers were those already discussed in the context of rural/isolated communities. Some Provinces are working towards getting automatic sprinkler systems as commonplace as smoke detectors, however, there are no programs at this time. For Northern communities, it has been suggested that smoke detectors have an inside wiring system rather than a battery operated system.

APPENDIX D

911 — A REVIEW

The following appendix provides a brief view of what implications a 911, Provincial Fire Response System, would have for northern Alberta. The review is based upon a report presented and copyrighted by Mobile Communications, Alberta Government Telephones, 1980.

911 — A REVIEW

In 1980, Alberta Government Telephones produced a proposal on behalf of Alberta Labour to develop a Provincial Fire Response System. The system was described as a comprehensive and reliable emergency reporting system which would ensure:

- Timely and easy public reporting;
- Co-ordinated and professional response to public reports of emergency.

The 911 system was viewed as integral to the "public reporting" component of the system. It provides the general public with an easy-to-remember, universal telephone number which is also fast to dial and easier to use than alternatives such as Zenith or long distance numbers.

Regional co-ordination centres were viewed as the necessary component of responding to public reports of emergency. The co-ordination centres would cover nine geographic regions and would be responsible for the following:

- Respond to incoming alarms from the populace;
- Co-ordinate the fire fighting resources of all fire agencies within that fire region's boundaries;
- Act as a resource and assistance centre for the fire departments under its jurisdiction.

The integrating mechanisms between the 911 reporting system and the co-ordination centres was a comprehensive communication system which would operate on the following three levels:

- Alarm and intra regional communications -- to allow the regional centre to activate various alarms;
- Area communications — radio contact between fire vehicles and radio base station at fire hall;
- Short range communications -- hand-held radios for key fire personnel at the scene of a fire.

The proposed cost of the system on a provincial basis was approximately $6 million per year for a fire response system and $3 million per year for a 911 fire reporting system. These costs are in 1978 dollars and would include rent, maintenance, and operation of the complex systems. Based upon a brief review, it may be that these figures could have been substantially reduced due to technological developments in communications.

It is a recommendation of the Committee for at least the "911" component of the fire response system be implemented. However, due to budget constraints, the Committee does not recommend that the 911 system be implemented until several factors have been fully addressed. These factors are:

- Compatibility with other emergency uses (other than fire reporting) such as police and medical emergencies;
- Feasibility of a "911" system as an additional system to other communication systems that may be developed (e.g. Alberta Department of Telecommunications);
- Development of a plan for cost sharing the system with organizations and regional governments which would derive a benefit from a global emergency reporting system.

Based upon current information, the Committee fully believes that a 911 system would improve the efficiency and effectiveness of public reporting of fires, however, there are many aspects to the system that reach beyond the scope of the Steering Committee. An additional review of how a 911 system will impact/benefit other areas other than fire prevention and protection may help to justify the implementation of such a capital system.

APPENDIX E

EMERGENCY LIFE SUPPORT SYSTEM

The following appendix provides a brief description of the Committee's review on an Emergency Life Support System.

EMERGENCY LIFE SUPPORT SYSTEM

As part of the Committee's terms of reference for the study, a review was to be made of the possible program opportunities for an emergency life support system. A life support system would provide emergency paramedic and ambulance support to emergency situations such as fire. In a similar fashion as the emergency response system of the 911, the Committee has determined that such a system, although of high importance and potential benefit, should not be pursued as a formal component of this program. The costs and impact of a life support system extend beyond the boundaries of fire protection and consequently deserve more study on a co-ordinated basis than the current Evaluations Committee could likely provide.

Future review of the life support system should be pursued with ambulatory, police, fire and local government representatives involved in the review.

APPENDIX F

STANDARDS FOR EVALUATION

The following appendix builds upon the discussion of evaluation and assessment in Chapter IV of the main report. The following standards for evluation are discussed:

- Incidence and Impact;
- Community and Commitment;
- Community Coverage;
- Cost;
- Technology;
- Alternatives;
- Program Rationale.

STANDARDS FOR EVALUATION

Incidence and Impact: The study has identified the current situation within the north with respect to incident and impact of fires. This understanding is based upon a twelve-year review of fire statistics and should form a solid basis of comparison for future statistics. The standard for the program will have two focuses:

- Reduce the gap in fire safety between the north and the south;
- Stop the growth in fire incidence and impact on a per capita basis in the north.

Continuity and Commitment: With the evaluation of programs impact being based upon statistics for the entire northern region, it is important that the program be delivered in a uniform manner. It is expected that not all regions/communities will respond in an equal fashion to the program. To obtain an insight into the various conditions that foster effective delivery of the program. Observations should be made of where and why continuity does not exist in the delivery of the program.

Community participation is a specific item which deserves special attention. Participation can be measured in the following ways:

- Number of individual volunteers who contribute from time to time;
- Number of community groups which do assist and participate from time to time;
- Hours of volunteer help provided;
- Number of new ideas and/or activities introduced by the community;
- Number of fire prevention programs implemented by the community;
- Nature and effectiveness of interface between region fire warden and prevention officer and with municipal region(s);
- Number and type of issues caused by delivering the program.

Community Coverage: The extent to which the community is committed to the program will indicate why or why not the program is being delivered, however, it is also important to understand to what degree the program covers the entire community. Standards for community coverage should assess the program's ability to reach the targeted market.

Specific standards for evaluation of community coverage should be the following:

- Number of households inspected;
- Number of students receiving fire safety education for each grade;
- Type and number of businesses which received guidance on customer education;
- Type and number of products which have been focused upon for customer education;
- General community awareness of:
  - Fire and Fire Safety school program
  - Home inspections
  - Community efforts in fire safety
  - Fire safety instructions on products
  - Regional Fire Warden and its accompanying program.

Note: This data will need to be collected through a public survey.

Cost: The administrative, operational and capital costs of the program should be developed in a comprehensive manner once the program is developed to a stage where costs can be accurately assessed and budgeted. Such costs are largely contingent on specific strategies of implementing the program. For example, the physical facilities to be provided for the Regional Fire Warden will alter costs significantly and is dependent on the co-operation of regional groups.

Standard costs for the program therefore are difficult to assess at this stage with any accuracy. However, annual operating and capital costs of the program must be maintained and reviewed on a region-by-region basis.

Technology: The type of technology available to the efforts of fire safety is generally static compared to other forms of technology, however, there have been significant technological advancements which have in the past resulted in extensive opportunities in fire safety. The most prominent example of such technology is the mass produced fire/smoke alarm. Other examples would be the introduction of fire safe material in clothing and buildings. Emerging technology in communications may alter and improve the task of education and new building design and materials may continue to help prevent fire.

Technological developments should be incorporated into the scope of the program as they are developed. For the foreseeable future, a standard for application of existing technology should be for homes to demonstrate a growing number of operative smoke detectors, through to a stage where they are in the vast majority of the homes.

Alternatives: An assessment(s) should be made of any cost-effective alternatives to the program which may achieve similar results. Such alternatives may occur over time due to technological or other change. And alternatives may range in scope from one small component of the program to the entire program.

Program Rationale: At each formal stage of evaluation (formative -- 5 years; summative -- 10 years) an assessment should be made of the program's ability to justify its existence in principle. Assessment and judgment will have to be made and to what extent the program's goal and objectives are still relevant. In addition, global judgements will have to be made to determine if program activities are consistent with program goals and objectives.

APPENDIX G

BIBLIOGRAPHY

The following appendix provides a bibliography of materials and publications referenced by the Steering Committee during the course of its review. Of special note are the National Research Council's Study on Fire Prevention and Control Systems in Canada, plus the Recommended Guidelines -- Community Fire Protection and Prevention North of 60, published by the Department of Engineering, University of Toronto.

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